



## International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 4 | Issue 2 | April - June - 2016  
www.ijamscr.com

Review article

Medical research

### An overview on dietary supplements during pregnancy: A review

Shail<sup>1\*</sup>, Dwivedi Manjari<sup>2</sup>, Kumar Neeraj<sup>3</sup>

<sup>1</sup>Research Scholar, Department of Rasa Shastra Faculty of Ayurveda, BHU, Varanasi, India.

<sup>2</sup>Professor, Department of Prasuti Tantra IMS, B.H.U, Varanasi, India.

<sup>3</sup>Professor, Department of Rasa Shastra, IMS BHU, Varanasi, India.

Corresponding author: Shail

#### ABSTRACT

A woman has to go through nine month long journey and faces many ups and down in this journey. In many developing countries, complication of pregnancy and child birth are the leading cause of death among women of reproductive age. Ayurveda and Morden system of health care provider understands food and nutrition in a different way than what is advocated by the modern science of nutrition. Only when adequate balance diet understanding becomes part of the common man, that it will also become part of their everyday living. Dietary measures for special situations like pregnancy or postpartum are only extensions of this science of nutrition. The average regular diet (with some modifications with view as to what is good for her and what is not) is adequate for the average expecting mother. She should be more concerned with the quantity and quality of what she eats. She should supply her body with good nourishing diet and at the same time eat foods that will build her baby's body tissues.

**Keywords:** Nutrition, Food, Pregnancy, Diet.

#### INTRODUCTION

A healthy pregnancy may depend as much on pre pregnancy diet and related body composition as it does to nutrients consumed during the pregnancy. It is well known that women with a body composition less than 22% fat rarely ovulate and the same is true of women with a normal body mass index (BMI) exposed to acute famine or starvation, where ovulation is suspended very rapidly. An ovulatory infertility is a feature of underweight but is also seen with a high frequency in women who are overweight in the pre conceptional period and indeed the outcomes of pregnancy follow a U-shaped curve, with more adverse outcomes in women entering pregnancy underweight and those entering pregnancy overweight or obese compared

with those in the normal weight range. Pre pregnancy counselling might reasonably, therefore, include dietary manipulation to either raise or reduce the BMI as appropriate, particularly in those found to have an ovulatory infertility. Marginal to severe folate deficiency appears to be present in 5% of the general population and in early pregnancy. Its association with neural tube defects and dietary advice to raise the intake of folates with a dietary supplement of folic acid (400 micrograms/day) is standard pre pregnancy advice.<sup>1</sup>

Ayurveda regards the woman and her ability to produce and care for children as the basis of family life which, in turn, is the very foundation of society. Therefore, only if the women of a society are safe, protected, and content can these qualities manifest in that society. Charaka is of the opinion

that there is no substance on the earth which cannot be used as a medicine<sup>2</sup>. According to UNICEF a woman dies from complications in childbirth every minute and by WHO about 529,000 each year, the vast majority of them in developing countries. Maternal mortality every day in 2015, about 830 women died due to complications of pregnancy and child birth<sup>6</sup>. Nutrition at time of pregnancy refers to adequate nutrition before and during pregnancy has greater potential for a long term health impact than it does at any other time. Nutritional requirements

of folic acid, iron, zinc, Vitamin C, iodine, Vitamin A, Vitamin D and calcium are increase during pregnancy. Hence, Nutritious foods supplements can help to achieve optimal health throughout the life. Ayurvedic and Allopathic both system of medicine is more emphasis on women's balance and herbal diet to enrich mother and her baby health during and after pregnancy .So by keeping these all things this paper more focus on diet and dietary supplements mostly describing in both system of medicine as a healthy diet .

## AVERAGE DIET FOR PREGNANCY<sup>3, 6, 11</sup>

### Diet during Pregnancy must contain the following Groups

Food Groups	Sources
<b>Cereals</b> ( <i>Anna Varga</i> )	Rice, Jowar, Barley, Wheat, Ragi, Maize, Bajra.
<b>Pulses</b> ( <i>Shimbi Varga</i> )	Green gram, green pea, black gram, bengal gram, soya bean, red gram, cluster beans, kidney beans (red), french beans, double beans
<b>Fruit Vegetables:</b> ( <i>Phala-Shaka Varga</i> ):	Bottle gourd, snake gourd, cucumber, tinda, lady's finger, parwal, ridge gourd, red pumpkin, drum stick, ash gourd, tomato
<b>Root and Tubers</b> ( <i>Mool - Kanda Varga</i> ):	Potato, sweet potato, carrots, radish, onion, garlic, ginger, yam, turmeric, beet root, tapioca (sago)
<b>Green Leafy vegetables:</b>	Spinach, Lettuce, Cauliflower leaves, Curry leaves, Coriander leaves, Mint, Cabbage, Fenugreek, Drum stick leaves, Amaranth leaves
<b>Milk and milk products</b> ( <i>Dugdha Varga</i> ):	Whole milk, Ghee, Butter, Paneer, Buttermilk, Curds, Cheese, Shrikhanda, Ice Creams can be consumed. Cow's milk and ghee is the boon to expecting mother.
<b>Flesh foods</b> ( <i>Mamsa Varga</i> ):	Goat meat, Titer (Partridge, Bird variety), Chicken, Sardine fish, Crabs, Goat liver, Chicken liver, Eggs, Cod-liver oil and Salmon
<b>Fruits:</b> ( <i>Phala Varga</i> ) ( <b>Fresh and Dry</b> )	Banana, Apple, Dates, Grapes, Pomegranate, figs, Jackfruit, lime, oranges, Mango, Pear, Phalsa, Dried figs, Resins, Apricot, Almond, Dried dates, Fresh Amla is a boon for expecting mothers. One Amla every day is very useful in every aspect of nutrition in pregnancy (Guava, Berries, Custard apple are not good for digestion hence it is better to avoid)
<b>Other healthy foods</b>	Garden cress seeds, Cardamom, Corriender leaves, Clove, Nutmeg, Onion, Tamarind, Dry, Ginger powder, Black pepper, Rock salt, Arrowroot, Sugar, Jaggery, (Mushrooms, Tea, Coffee, Soft drink, Wines and Alcohols should be avoided)

### Balanced Diet for pregnant women<sup>3, 6</sup>

Diet during Pregnancy must contain the following Groups and daily required quantity:

Sr. No.	Food Group	Quantity (gm)
1	Cereals and millets	30
2	Milk (ml)	500
3	Roots and Tubers	100
4	Green leafy vegetables	150

5	Other vegetables	100
6	Fruits	200
7	Sugar	20
8	Fats and oils	30

### Role of some important food supplements (Nutrients) which are must be required during pregnancy as follows<sup>3,6</sup>

S.No.	Supplements	Role
1	Protein	The additional protein is essential for <ul style="list-style-type: none"> <li>• Growth of the foetus</li> <li>• Development of placenta</li> <li>• Enlargement of uterus, mammary gland</li> <li>• Increased maternal blood volume</li> <li>• Formation of amniotic fluid</li> <li>• Preparation for labour, delivery, post-partum period</li> </ul>
2	Fat	<ul style="list-style-type: none"> <li>• Fat containing Linoleic acid requirements during this stage are 4.5 Percentage of total energy of this, some of the essential fatty.</li> <li>• Therefore an intake of 30g of visible fat has been suggested to meet the essential fatty acid needs</li> </ul>
3	Calcium	The additional calcium is needed for <ul style="list-style-type: none"> <li>• Growth and development of bones and Teeth of the foetus</li> <li>• For the protection of calcium resources of the mother to meet the high demand of calcium during lactation.</li> </ul>
4	Iron	<ul style="list-style-type: none"> <li>• The requirement of iron increases from 30mg/day to 38mg/day during pregnancy.</li> <li>• The increased requirement of 8mg/day is due to,</li> <li>• Expansion of maternal tissues including red cell mass,</li> <li>• Iron content of placenta and blood loss during parturition.</li> </ul>
5	Zinc	<ul style="list-style-type: none"> <li>• Deficiency of zinc adversely affects the outcome of pregnancy.</li> <li>• Apart from being a component of insulin and enzyme systems,</li> <li>• It also participates in the synthesis of DNA and RNA, playing a significant role in reproduction.</li> <li>• Hence zinc deficiency leads to foetal mortality,</li> <li>• Foetal, malformations and reduced intra uterine growth rate.</li> </ul>
6	Vitamins Vitamin A:  Vitamin D:	<ul style="list-style-type: none"> <li>• Vitamin A requirements during pregnancy have been computed based on the vitamin A content of liver of the new born.</li> <li>• The additional intake works out to 25 <math>\mu</math>g/day throughout pregnancy.</li> <li>• Since this constitutes a very small fraction of the RDA for normal women, no additional allowance during pregnancy is suggested.</li> <li>• Vitamin D is essential as it enhances maternal calcium absorption.</li> <li>• Its active form calcidiol and calcitriol can pass through placenta with ease and help in calcium metabolism of foetus.</li> </ul>

### ICMR Recommended dietary allowances for Woman<sup>3,5</sup>

ICMR recommended Dietary allowances for Normal Woman and for pregnant women as follows

Nutrient	Normal Woman	Pregnant Woman
Energy(k.cal)	2225	2525
Protein (g)	50	65

Fat (g)	20	30
Calcium(mg)	400	1000
Iron (mg)	30	38
Vitamin A		
Retinol (mg)	600	600
b carotene(mg)	2400	2400
Thiamine(mg)	1.1	1.3
Riboflavin(mg)	1.3	1.5
Niacin (mg)	14	16
Pyridoxine(mg)	2.0	2.5
Ascorbic acid(mg)	40	40
Folic acid (mg)	100	400
Vitamin B12(mg)	1	1

The food she eats should be delicious to her. Much of the diet should be in a liquid or semi-liquid form, moist, nourishing, enriched with all the six rasas (tastes) and supplemented with deepana (agni promoting) plant medicines and spices which are known to increase appetite and digestive power. During Pregnancy she should also avoid the following things:<sup>6, 11</sup>

- Overeating or fasting
- Speaking in a loud voice
- Sleeping during the day time and staying up late at night
- Tight clothes and tight belts
- Words or sights which give rise to feelings of sorrow, anger, fear or pain
- Traveling in a vehicle on rough roads

- Squatting for a long time or sitting in an uncomfortable position or on a hard surface
- Lifting heavy things or remaining in a bending position for a long time
- Beholding natural urges unless in an emergency
- Dry, stale, fermented, heavy, hot or strong food, alcohol and meat (fish is allowed)

### MONTHLY FOOD REGIMEN<sup>6</sup>

Month wise dietary regimen and mode of life has been prescribed by different authors in various Ayurvedic texts by following the dietetic regimen, Acharya charaka says that the woman remain healthy and delivers a healthy child which are as follows:

First and Second month	Sweet, cold, (cooling to the body) and liquid forms because the foetus is unstable in the uterus in the early months) Some examples of the dietary substances are: - <i>Singhoda (Trapa natans)</i> (Water chestnut) - This is ' <i>Garbhasthapan</i> food (stabilizes fetus). It helps to fix the placenta. Singhoda powder 1 table spoon with luke warm milk and ghee is very useful. If possible, she should take 3 to 4 cups of whole milk every day. Daily use of Cow's ghee with milk is\ useful at this time of the pregnancy.
Third month	Rice with milk is advised to be taken frequently and in more quantity in the first course of the meals like early breakfast and lunch.
Forth Month	Heart of the foetus starts working in this month. More pure kahpa and rakta is essential for the fetus here. Curds with rice and ghee are to be consumed more in this month. More quantity of food is to be taken in a day time like breakfast and lunch.

Fifth Month	Mana or mind becomes promptly active. All 'Hridaya' (wholesome to Mana and heart) are to be provided to develop mental faculties in proper manner. Rice with cow's milk is advocated by Ayurveda. This milk is boon to the making of mind.
Sixth month	<i>Smriti</i> (recollecting power) <i>buddhi</i> (power of Perception) starts functioning hence cow's ghee is recommended in this month. One should consume a judicious amount of ghee with rice
Seventh Month	The genesis of all the body organs is c body components like <i>rakta</i> (Blood), <i>asthi</i> (Bones) <i>medhya</i> (Intellect) etc. This requires a specific prescription for each individual body constitution.
Eighth and Ninth Month	Eat rice prepared with milk in semisolid or liquid form with ghee.

### Diet during Pregnancy: NIN (ICMR) Hyderabad 2010

should be taken during first trimester because it helps in developing nervous system.

First Trimester –Average calorie intake 2400 kcal/day: Food rich in Folic Acid and vitamin- B6, It

Meal	Menu	Amount
Breakfast	Daliya	1 Bowl
	Cow milk	1 Glass
	Cashewnut	3-4
Lunch	Chappati	2
	Green leafy Vegetables	1 Bowl
	Dahi	1 Bowl
	Rice	1 cup
Brunch	Apple	1
	Banana	1
	Poha	1 Bowl
	Biscuit	2
Dinner	Paratha	2
	Seasonal veg	1 Bowl
	Cow milk	1Glass
	Munkka	8-10

**Second Trimester** –Average calorie intake 2800 kcal/day: Foods rich in omega 3 Fatty acid, Vitamin D, Calcium and iron should be taken in second

trimester for bones, teeth and brain development of foetus.

Meal	Menu	Amount
Breakfast	Daliya	1 Bowl
	Cow milk	1 Glass
	Cashewnut	3-4
Lunch	Chappati	2
	Green leafy Vegetables	1 Bowl
	Dahi	1 Bowl
	Rice	1 cup

Brunch	Apple	1
	Banana	1
	Poha	1 Bowl
	Biscuit	2
Dinner	Paratha	2
	Seasonal veg	1 Bowl
	Cow milk	1Glass
	Munkka	8-10

Third Trimester –Average calorie intake 2900 kcal/day

Meal	Menu	Amount
Breakfast	Almond	2-3
	Cow milk	1 Glass
	Fuirt salad	1 Bowl
Lunch	Chappati	2
	Green leafy Vegetables	1 Bowl
	Dahi	1 Bowl
	Rice	1 cup
Brunch	Apple	1
	Banana	1
	Poha	1 Bowl
	Biscuit	2
Dinner	Paratha	2
	Mixl veg	1 Bowl
	kheer	1Glass
	Makhana	8-10

### Need For the study

Care of pregnant women presents a unique challenges because both pregnancy and child birth, to a certain extent is an unpredictable process. It is common for pregnant women to experience unpleasant symptoms in pregnancy, caused by normal physiological changes. Due to high nutritional requirements during pregnancy proper nutrition can made a significant contribution in reducing the risk factor of abnormalities.

### CONCLUSION

As we can see from this article, the wealth of ancient Ayurvedic wisdom included the holistic principles of safe and healthy motherhood. A

special dietary regimen and program of conduct has been advocated for the garbhini right from the first day till the ninth month of pregnancy. The regimen has been formulated considering the different physiological changes taking place in the pregnant women along with the requirements of the growing foetus. When we turn the pages of various Samhita's we find that the stages of foetal growth and development have been studied very carefully and the diet and drugs prescribed to the garbhini has been formulated accordingly. As pregnancy proceeds' supplementation are needed along with a wholesome balanced diet. So that at lastly we can conclude that proper dietary intake during pregnancy according to requirement may enhance positive health for mother as well as foetus.

### REFERENCES

- [1]. Frisch RE. The right weight: body fat, menarche and fertility. *Proc Nutr Soc*1994; 53(4), 113–29.
- [2]. Charaka Samhita, Surtrasthan, 2 – 6.
- [3]. B. Srilakshmi. Dietetics. Fourth Edition. New age international (P) limited, Publishers. New Delhi- 110 002. 2005; Pp 140.

- [4]. Dwivedi, M: Ayurvedic Concept of Food in Pregnancy. *Ancient Science of Life*. 1995; 245-247.
- [5]. Nutrient requirement and recommended dietary allowances for Indians, Indian Council of Medical Research 2000.
- [6]. Tewari P.V. ; Text book of Prasuti Tantra and Stree Roga, vol I , 1st edition, Publish by chaukhamba orientalia, Varanasi. 1993.
- [7]. UNICEF, WHO, the World Bank, United Nations Population Division. The Inter-agency Group for Child Mortality Estimation (UN IGME). Levels and Trends in Child Mortality. Report 2015. New York, USA, UNICEF, 2015.
- [8]. Ahmad Esmailzadeh, Saeid Samareh and Leila Azadbakht.. Dietary pattern among pregnant women in West-north of Iran. *Pakistan Journal of Biological Sciences* 2008; 11(5), 793-796.
- [9]. Gopalan, C. 1962. Effect of nutrition on pregnancy and lactation. *Bull. WHO*, 26, 203.
- [10]. M. M. Pandey, Subha Rastogi, and A. K. S. Rawat, "Indian Traditional Ayurvedic System of Medicine and Nutritional Supplementation," *Evidence-Based Complementary and Alternative Medicine*, vol. 2013, Article ID 376327, 2013; 12,.
- [11]. Bhushan Patwardhan, Dnyaneshwar Warude, P. Pushpangadan, and Narendra Bhatt, "Ayurveda and Traditional Chinese Medicine: A Comparative Overview," *Evidence-Based Complementary and Alternative Medicine*, vol2 (4), 2005; 465-473.
- [12]. <http://www.livescience.com/45090-pregnancy-diet.html> (Assessed 2015)

**How to cite this article:** Shail, Dwivedi Manjari, Kumar Neeraj, An overview on dietary supplements during pregnancy: A review. *Int J of Allied Med Sci and Clin Res* 2016; 4(2): 242-248.

**Source of Support:** Nil. **Conflict of Interest:** None declared.