#### DIET IN PREGNANCY AND LACTATION

From conception to exclusive breast feeding (first 6 months) the baby completely depends on mother's nutritional status. If the mother is underweight or not gaining optimal weight during pregnancy the nutrients that are transferred to the baby will be of poor quality and quantity. On the other hand, if the mother is overweight, it will hamper the blood circulation to the uterus and restricts the quantity of nutrients transferred to the placenta and to the baby. There is a considerable increase in the nutritional needs of the mother. On an average the pregnant women gains about 10 kg in pregnancy. Either low or excessive weight gain are harmful to the pregnant women and as well as the developing foetus (baby). A pregnant women need to consume about 350 extra calories per day, which translates to one additional meal.

The growth and development of the baby is determined by the food taken by the mother. All the nutrients provided to the baby are derived from her food. In the first seven days, baby nourishes with the nutrients from the just fertilized ovum, then the amniotic fluid and later on throughout the pregnancy the baby receives nutrients via the placenta. Even after birth the baby receives all the nutrients for the first 6 months exclusively from mother's milk. This is followed by gradual introduction of complementary foods after 6 months along with the mother's milk. Eating healthily during pregnancy will help the baby to develop and grow normally, and will keep the mother fit as well. A healthy diet during pregnancy should contain the right balance and combination of nutrients. If the mother is consuming a balanced diet comprising of various food groups, she gets the benefit of various nutrients that are necessary and increased during the pregnancy.

## Reach ideal body weight

Before attempting to get pregnant the mother has to gain ideal body weight for a given height (20 to 23 BMI) if she is underweight or may choose to shed some weight if she is overweight. It's a good idea to be as close as possible to the recommended weight for a given height (BMI) when trying for a baby as being overweight or underweight can affect babies' growth and development. However consult a doctor before starting on any diet or exercise plan. A pregnant woman needs only 350 calories a day more than she did pre-pregnancy. An average size fruit provides 50 to 75 calories. So, getting these extra 350 calories doesn't take a lot of food. If the

mother's weight is between 20 to 23 BMI before pregnancy, during pregnancy what she eats may be more important than how much she eats.

Food	Food stuff	vegetarian	Total	Total	non-	total	total
group		U U	energy	protein	vegetarian	calories	protein
			calories	mg/dl		(k cal)	(mg/dl)
Ι	Rice,	300 grams	1035	20.4	300	1035	20.4
	Wheat and	(raw)					
	millets						
	Oils ,ghee	30 grams	279	0	30	279	0
	and butter						
	Jaggery and	20 grams	7.96	0.02	20	7.96	0.02
	sugar						
II	Milk and	500 grams	290	29.5	500	290	29.5
	curd, etc						
	Pulses,	60 grams	208.8	14.7	40	139.2	9.8
	Dried beans	(raw)					
	Fish, Egg	nil	nil	nil	20	23.6	4.8
	and meat						
III	Fruits	200 grams	169.5	1.65	200	169.5	1.65
	vegetables	350 grams	121	3	350	121	3
	Green leafy	150 grams	48	3.65	150	48	3.65
	vegetables						
	Other	120 grams	22.2	1.08	120	22.2	1.08
	vegetables						
	Roots and	100 grams	32	0.6	100	32	0.6
	tubers						
Total			2213.46	74.6	Total	2167.46	74.5

# **RECOMMENDED DIET FOR A PREGNANT WOMEN**

**Source:** - Source dietary guidelines for Indians – a manual, NIN, Hyderabad. The diet given is a Vegetarian diet for pregnant women (weighing 50kg) doing sedentary work,

# Note:

- 1. Seasonal fruits may be included depending on availability and cost.
- 2. Nuts such as cashew nuts, walnuts or almonds can help the mother meet her extra requirements for important nutrients such as folate, iron, calcium and MUFA and PUFA such as omega-3 fats and also supply a wide variety of vitamins and minerals. They are rich in fibre as well. They are a great source of protein for vegetarians. Nuts are nutrient dense and therefore must be consumed in moderation. A portion of energy from oils or

cereals can be replaced with nuts. The table below shows the average meal plan for pregnant women doing sedentary work

Food group	<u>Ouantity/serving</u>	<u>Servings/day</u>	<u>Total intake per day</u>
Cereals & Grains	<u>100 g</u>	<u>3</u>	<u>300 g raw</u>
Pulses	<u>30 g</u>	2	<u>60g raw</u>
Milk and milk products	<u>250 ml</u>	<u>2</u>	<u>500 ml</u>
Green leafy vegetables,			
other vegetables, roots and	<u>100 to 150 g</u>	<u>4</u>	<u>400 g</u>
<u>tubers</u>			
<u>Fruits</u>	<u>100 g</u>	<u>2</u>	<u>200 g</u>
<u>oils</u>	<u>30 ml</u>		<u>30 ml</u>

# Building a meal plan for pregnant woman (weighing 50kg) doing sedentary work

For Non-Vegetarian, pulses 30 grams and egg/meat/chicken/fish 30grams are suggested

- 1. Low intake and poor consumption of milk, pulses, legumes and fruits and vegetables during pregnancy lead to
- ➢ Low birth weight
- ➤ Small babies
- ➢ Stunted growth
- Micronutrients deficiency which causes impaired immune response and complication, such as more frequent infection and allergic response in the new born
- 2. But eating too much makes the mother prone to obesity, diabetes, high blood pressure and may give her a very large baby.

# Food myths:

Eating papaya causes abortion: The truth is that raw papaya is suspected to contain chymopapaine which is supposed to induce abortion or early labor. But ripe papaya is considered to be safe. Moreover ripe papaya is a good source of vitamin A.

Eating hot and spicy foods can cause abortion: If eaten in moderation, it causes no harm to the baby. However, one should avoid very spicy food during pregnancy as many have the symptom of heartburn and very spicy food may increase it.

### Why additional diet is required during pregnancy and lactation?

Pregnancy is a demanding physiological state. In India, it is observed that diets of women from the low socioeconomic groups are essentially similar during pre-pregnant, pregnant and lactating periods. Consequently, there is widespread maternal malnutrition leading to high prevalence of low birth weight infants and very high maternal mortality. Additional foods are required to improve pregnancy weight gain and birth weight of infants. Pre-pregnant body mass index (BMI), maternal age and rate of pregnancy weight gain must be considered in tailoring the calorie recommendation to the pregnant women.

- A sedentary woman requires 1875 calories per day. Additionally 300 calories are required during pregnancy. That is a total of 2175 calories.
- A sedentary woman requires 1 gram protein per kg body weight per day- that is a total of 50 grams if the woman prepregnant weight is 50kg. Additionally, she requires 0.3 grams per kg body weight during pregnancy. That is, a total of 65 grams protein is required per day if the prepregnant weight is 50 kg.
- Daily oral iron and folic acid supplementation is recommended as part of the antenatal care to reduce the risk of low birth weight, maternal anaemia and iron deficiency. Iron is needed for haemoglobin synthesis, mental function and body defence. Deficiency of iron leads to anaemia. Plant foods like legumes and dried fruits contain iron.
- Folic acid, taken throughout the pregnancy, reduces the risk of congenital malformations and increases the birth weight. Green leafy vegetables, legumes, nuts and liver are good sources of folic acid. 500 mg folic acid supplementation is advised preconceptionally and throughout Pregnancy for women with history of congenital anomalies (neural tube defects, Cleft palate)
- Calcium is essential, both during pregnancy and lactation, for proper formation of bones and teeth of the offspring and for secretion of breast-milk rich in calcium and also to prevent osteoporosis in the mother.
- > Iodine intake ensures proper mental health of the growing foetus and infant.

## What additional care is required?

Adequate intake of a nutritious diet is reflected in optimal weight gain during pregnancy (10 to 12 kg) by the expectant woman.

She should choose foods rich in fiber (fibre 25 g/1000 kcal) like whole grain cereals, pulses and vegetables, to avoid constipation.

Excess intake of beverages containing caffeine like coffee and tea adversely affect foetal growth and, hence, should be avoided.

In addition to satisfying these dietary requisites, a pregnant woman should undergo periodic health check-up for weight gain, blood pressure, anaemia and receive tetanus toxoid immunization.

She requires enough physical exercise with adequate rest for 2-3 hrs during the day. Pregnant and lactating women should not indiscriminately take any drugs without medical advice as some of them could be harmful to the foetus/baby.

Smoking and tobacco chewing and consumption of alcohol must be avoided. Wrong food beliefs and taboos should be discouraged.

### **Do's for expectant mother:**

- Get regular antenatal check-up done
- Eat optimum food during pregnancy that include whole grains, sprouted grams and fermented foods.
- > Take Milk, Meat and Eggs in moderate quantities
- Eat recommended vegetables and fruits
- Take iron, Folate and calcium supplements regularly after 14-16 weeks of pregnancy and continue the same during lactation

# **Don'ts for expectant mother:**

- Avoid superstitions and food taboo
- Do not use alcohol and tobacco

- ➢ Take medicine when prescribed only
- Caffeine and alcohol are to be avoided as they cross the placenta and thus affect heart rate and breathing of the baby.

### Food safety and hygiene:

Wash fruits and vegetables to remove all traces of soil and pesticides. The peel of the fruits or the outer surface of the vegetables may be contaminated with tiny bugs (bacteria, parasites) that may cause food poisoning. Toxoplasma, a parasite, when present on raw fruits and vegetables can cause toxoplasmosis – which may harm the baby. Also, the peel of the fruits and the outer surface of the vegetables may contain pesticide that is very harmful. Thorough washing or soaking whole vegetables and fruits in salt water for 5 to 10 min, kills most bugs and removes pesticides substantially.

Make sure that raw foods are stored separately from ready-to-eat foods. There is a risk of contamination of ready-to-eat foods when they are stored along with raw vegetables. Use a separate chopping board for raw vegetables and use a separate one for roti (phulka) preparation. If vegetables are to be consumed raw such as salads- care must be taken to clean them thoroughly as mentioned above and should not be stored along with raw meat. Care must be taken to preserve raw meat separately. Meat may contain bacteria such as salmonella, campylobacter or E.coli and also parasites. Meat must be preserved separately and a separate chopping board must be used for meat.

Wash all surfaces and utensils, and hands, after cleaning raw vegetables or meat – this will help to avoid food poisoning with bacteria or bacterial toxins (salmonella, staphylococcus, campylobacter or E.coli) and toxoplasmosis.

# **Diet during lactation**

A balanced diet suitable for a nursing mother shall contain the same kind of food as those recommended during pregnancy, but slightly increased quantities. Twin factors of physical activity and active production of breast milk make additional demands for energy yielding foods, proteins and other nutrients. In general, most women who are breastfeeding need about 500 calories more than a woman who is non-pregnant and non- lactating; that is a total of 2,500 to 2,700 calories per day depending on her physical activity. A mother's capacity to produce milk of

sufficient quantity and quality to support infant growth is resilient and remarkably resistant to nutritional deprivation, however, milk production normally affects maternal body composition and nutritional status, and lactating women have increased nutrient demands. In rare situations, such as a mother with a new diagnosis of breast cancer or who has been tested positive for the human immunodeficiency virus (HIV), should discuss their infant feeding plans with their health care provider.

Food	Food stuff	Vegetarian	Calories	Protein	Non-	Calories	Protein
group			(energy)	mg/dl	Vegetarian	energy	mg/dl
Ι	Rice ,wheat and millets	330 grams	1138	32.34	330 grams	1138	32.34
	Oil ghee, butter	30 grams	270	nil	30 grams	270	nil
	Sugar and jaggery	20 grams	78	nil	20 grams	78	nil
II	Milk and curd	500 grams	335	16	500 grams	335	16
	Pulses, dried beans	90 grams	357.75	20.14	60 grams	224	14.0
	Meat , fish, egg		nil	nil	30 grams or 1 egg	29.1	5.0
III	Fruits	200 grams	232	1.44	200 grams	232	1.44
	Greens leafy vegetables	350 grams	175	9.8	350 grams	175	9.8
	Other vegetables	130 grams	52	2.34	130 grams	52	2.34
	Roots and tubers	120 grams	116	1.8	120 grams	116	1.8
		Total calories	s = 2754	83.86	Total calorie	s = 2649.1	82.38

## RECOMMENDED DIET FOR A LACTATING WOMEN

# References

1. All the data used for this article was obtained from "Nutritive Value Indian Foods", a publication of the National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.

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2. NIN publication book mother and child nutrition