



DIET MANAGEMENT DURING PREGNANCY ACCORDING AYURVEDA

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Article Received on 01/02/2018

Article Revised on 22/02/2018

Article Accepted on 12/03/2018

ABSTRACT

Pregnancy is a happy and joyous time of life for many women. It can also be a challenging time of life as the mother's body goes through numerous changes in order to create and support the development of a new life. Ayurveda is an excellent addition to the care provided by medical doctors and midwives. Ayurveda creates support for the physical, mental/emotional and spiritual bodies of the mother and her baby. Women have special dietary needs during each stage of her lives, including adolescence, pregnancy, breast feeding and menopause. During pregnancy the mother's nutrition bears a great impact on the fetus's growth and its future. Ayurveda lays great emphasis on ensuring holistic nutrition. A combination of Ahara (diet), Vihara (regimen), Vichara (emotions/thoughts) and Aushadha (medications) have been given great significance in Ayurveda in antenatal care called as Garbhini Paricharya (Antenatal care). Diet comprises the most important component of Garbhini Paricharya. Ayurveda advises congenital diet and regimen throughout the pregnancy.^[1] It also stresses on the healthy state of mind and body to beget healthy progeny. Milk and ghee stand out as the most common in the pregnant diet that Ayurveda advises. The idea of this is to provide optimum amount of protein and fat to the body. In addition, it provides right amount of calcium and vitamins for the pregnant mother helping in sustaining a comfortable lactation. In this review article a designed protocol of the month wise diet advised by various ancient Ayurvedic physicians, which can be modified according to the age, season, place, constitution and the digestive fire of the pregnant woman has been presented.

KEYWORDS: Pregnancy, Garbhini Paricharya, Ahara, Vihara, Vichara.

INTRODUCTION

Pregnancy also known as gestation, is the time during which one or more offspring develops inside a woman^[2] A multiple pregnancy involves more than one offspring, such as with twins. Pregnancy can occur by sexual intercourse or assisted reproductive technology.^[3] Childbirth typically occurs around 40 weeks from the last menstrual period (LMP). This is just over nine months, where each month averages 29½ days. When measured from conception it is about 38 weeks.^[4] Dietary regimen in pregnancy is one of the most essential aspect which should be taken care of; as the growth of the fetus solely depends upon the health and nutrition of the mother. According to Ayurveda the Ahara- rasa i.e. nutrition or energy obtained from the mother's diet serves three important functions, firstly nourishment of the mother herself, nourishment and growth of the baby, and lastly preparation for formation of stanya, i.e. breast milk.^[5] There is an increased need of balanced diet with good nutritional value during pregnancy, any negligence

or deprivation in nourishment may affect physical and mental growth of the fetus or either lead to miscarriage, premature delivery or an underweight baby. Here this article will benefit you in planning your diet accurately during pregnancy. Some basic dietary rules should be followed such as having timely meals is essential, it helps in proper digestion and keeps mother healthy. Mother should have freshly prepared food, which is easily digestible and healthy. It should be a balanced diet providing necessary nutrition for mother and baby. Dietary supplements like fresh fruits, vegetables, milk and ghee should be consumed regularly in desirable amount.

NEED OF DIET MANAGEMENT DURING PREGNANCY

Giving birth is considered a normal yet a special act; it is also a critical bodily phase, which can go away. Society has a responsibility to ensure that all women should safely journey through pregnancy and childbirth. If that

does not happen it shows failure of a society (families and communities) and a crisis in healthcare system. Going by the number of maternal deaths related to childbirth, it appears that India as a civilization has failed her women when it comes to ensuring their survival and safety in the most basic act of procreation. What is even more miserable is the fact that mother and child health (MCH) care is one of strength of Traditional Indian Medical System.^[6] India has accounted for a third of global maternal deaths, at 19% (56,000). The Indian Maternal Mortality Rate (MMR) in 2009 was 212 maternal deaths per 100,000 live births, down from 398 maternal deaths per 100,000 live births in 1997.^[7] Needs of the pregnant women are not the sum of the needs of growing fetus added to those of a mature woman, maternal health is a complex, influenced by various genetic, social and economic factors, infection and environmental conditions, many of which may affect the fetal growth. Physiological increased absorption, increased excretion or alterations in metabolism.^[8] In many developing countries, these physiologic changes can be aggravated by under-nutrition, leading to micronutrient deficiency states, such as anemia, that can have disastrous consequences for both mothers and newborn infants. Keeping this view in mind ancient Ayurvedic physicians had planned a regimen for pregnant woman known as *Garbhini Paricharya*^[5] Ayurvedic text states that, "If a pot filled with oil right up to the brim is to be carried without spilling even a single drop, every step has to be taken with care", the texts emphasis that a similar care and attention is required in taking care of a pregnant woman.^[6] In classical Ayurvedic texts an extensive study of food articles, food preparations, diet regimens, specific diets for surgical procedures and prenatal as well as postnatal dietetic cares etc. can be seen. Since food is the cause for health as well as disease.

WHAT ACTUALLY HAPPENING IN PREGNANCY

During pregnancy, the woman undergoes many physiological changes, which are entirely normal, including cardiovascular, hematologic, metabolic, renal, and respiratory changes. Increases in blood sugar, breathing, and cardiac output are all required. Levels of progesterone and oestrogens rise continually throughout pregnancy, suppressing the hypothalamic axis and therefore also the menstrual cycle. The fetus is genetically different from the woman and can be viewed as an unusually successful allograft.^[9] The main reason for this success is increased immune tolerance during pregnancy.^[10] Immune tolerance is the concept that the body is able to not mount an immune system response against certain triggers.^[9] Pregnancy is typically broken into three periods, or trimesters, each of about three months.^[11] Each trimester is defined as 14 weeks, for a total duration of 42 weeks, although the average duration of pregnancy is 40 weeks.^[12] While there are no hard and fast rules, these distinctions are useful in describing the changes that take place over time.

First trimester

The embryo takes the form of a jelly^[13] A gelatinous substance is formed.^[14] The zygote begins to divide immediately after conception. It then travels down the fallopian tube and embeds in the thick lining of the womb where it links up with the mother's blood vessels.' Fertilization and implantation into the uterine wall occur. The baby's brain, heart and spinal cord begin to form. The molecules of air, fire, earth, water and ether are acted upon by pitta, vata, and kapha. The embryo floats in a fluid-filled sac; it has a simple brain, spine and central nervous system. The digestive and respiratory systems are beginning to develop.^[15] The baby's heart begins to beat, the neural tube along the baby's back closes, the umbilical cord appears, and the fingers and toes form. All senses and limbs as well as their organs appear.^[16] Lumps appear that will form the hands, legs and head.^[17] The fetus has all the sense organs as well as completely formed limbs including fingers and toes. The heart starts beating and circulates blood.^[18] Movement begins, neurons multiply, sex may be apparent, and fingernails and toenails appear.

Second trimester

The mother feels excess heaviness in her body due to the stabilization of the fetus.^[19] All limbs and organs become more distinct; viscus of the heart allows consciousness to form. Desires of the heart are thus made manifest to the mother and must be followed so that the baby is not born deformed.^[20] The fetus has a neck as well as joints in the arms and legs. The hard bones begin to develop.^[21] The baby flexes and kicks, hormone effects are apparent, skin begins to form and facial expressions are possible. There is an increase in flesh and blood of the fetus; the mother may get thinner.^[19] The fetus gains the mind (manah) and wakes up from its sleep of sub-conscious existence. The fetus is quite active, kicking and turning. The sex organs are visible and there is a fine, hairy covering called a lanugo that has developed.^[18] Fat stores begin to develop, the baby begins to hear, movement begins to happen, urine is produced and eyebrows appear. There is an increase in strength and complexion of the fetus; the mother may lose her strength and complexion.^[22] Cognition (buddhz) enters the fetus. The fetus straightens out and becomes erect. A grayish-white, cheesy coating called vernix covers the skin. Sweat glands form.^[21] Bone marrow begins producing blood cells, taste buds develop, practice breathing occurs as amniotic fluid moves into and out of the lungs, a regular sleeping and waking cycle appears, and foot prints and fingerprints form.

Third trimester

There is an all-around development in the fetus; the mother may become deficient in all aspects of her health.^[23] All limbs and members of the body are developed. Fat starts to accumulate under the skin and the brain develops dramatically. The baby can suck its thumb and respond with facial features to different tastes. Eyes can open and close, it's movements are forceful,

and hiccups can be experienced. Ojas moves back and forth between mother and baby. The mother may experience a wavering feeling of sorrow and joy due to this movement. Normal delivery takes place between the beginning of the 8 months and before the end of the 10

months (counting lunar months of 4 weeks)^[24] The baby shifts to a head down position.^[25] Fat continues to accumulate, organ function improves, and the placenta provides antibodies.

DIET DURING PREGNANCY

RDA (Recommended Dietary Allowances) of pregnant lady^[26]

S. No.	RDA	Requirement level
1	Energy	300 k cal. extra i.e. total 2000 -2100 k cal./day
2	Protein	15 g i.e. 60-65 g / day
3	Fat	10 g i.e. 30g / day
4	Calcium	600 mg i.e.1000 mg / day
5	Fe (iron)	8 mg i.e. 38 mg / day
6	Folic acid	300 µ g i.e. 400 µ g / day
7	Vit-A	200 IU i.e. 1000 I.U. / day
8	Ascorbic acid	60 mg / day

The benefits of this dietetic regimen and life style prescribed for the woman will have normal development of fetus. Acharya Charaka says that by this regimen woman remains healthy and delivers the child possessing good health, energy or strength, voice, compactness and much superior to other family member and also prevent the other complication during the period of pregnancy like stillbirth, abortion, preterm delivery, postpartum hemorrhage etc.^[27] By the use of this regimen and daily schedule from first to nine month her garbhdharni (fetal membrane), birth canal, kukshi (abdomen), sacral region, flank and lower back becomes soft, vayu moves in the right path or direction, feces, urine and placenta are excreted or expelled easily by their respective passage at the time of birth, will have no any complications and delivery occur easily at own right time.^[27] According to the Ayurvedic principles rasa i.e. nutrients absorbed from the food is derived from diet taken by the pregnant lady and serves three purposes.^[28] They are nourishment of her own body, nourishment of the fetus and formation of milk for nourishment of baby after birth.

During pregnancy food requirement increases because so many changes occurs like weight increases in case of normal healthy lady - gain nearly 9-11 kg (20-25 lbs.) during her pregnancy period. Due to this, basal metabolic rate (BMR) increases, blood volume is increased by 25%, but hemoglobin is decreases i.e. <12 g/dl called physiological anemia, extra requirement for fetal growth.^[29]

The demand of other nutrients is also increased by few ratios during pregnancy. This is the main basic requirement during pregnancy, which could be fulfilled by diet plan. But during this period, less acid and pepsin are produced by the stomach, regurgitation of stomach contents into the esophagus cause heartburn sometimes, this is a physiological condition. The reduced motility of the intestinal muscles may contribute to constipation; all these conditions facilitate the less consumption of diet and create the worse condition during pregnancy.^[30] So, if we use light food and more nutritious like old Sali and

Sastika (type of rice) which is naturally light in digestion will have good result. Intake of parboiled is more nutritious because it contains more water-soluble vitamins and all essential amino acids, nearly 2.8 mg Fe per 100 g serving and good amount of folic acid. Old rice contains short chain carbohydrate which give energy in very less time i.e. digests in less time.^[31] Flour of perched rice is antiemetic. It is given in early trimester and also in diarrhea and fever.^[32] Whole wheat flour is rich in fiber, protein -12 g per 100 g, Fe - 4.9 mg / 100 g and so it relieves constipation.

Wheat and rice have madhura vipaka and sheeta virya properties, so it subsides the aggravated Vata and does not cause acidity. Green gram in the pulses is naturally easy digestible, rich source of folic acid, contain all essential amino acids and is a good source of protein which is very essential in this period.^[31] Milk is the ideal food for all human beings; it increases the oja, immunity and provides the all nutrients.^[33] Cow's milk and curd contain high protein- fat ratio and is a good source of folic acid, but it is less in buffalo's milk. Tyrosine amino acid is absent in buffalo's milk but present in cow's milk. During pregnancy mainly Vata dosha is more aggravated and Agni is mandagni. Ghrita and butter is the main source of fat and subsides the vata and increases the Agni. Ghrita prepared from the curd of cow's milk contain short chain fatty acid which has less or very less deposition properties in the vessels and butter contains more carotene.^[27] Honey and jaggery is used as sweetener and it contain fibers. Honey has decholesterolysing property and prevents the deposition of fatty acid in the vessels. Fructose of honey is the source of energy and compensate with the requirement of glucose in the first trimester.^[34] In the group of fruits, banana, amla, jackfruit, mango, draksha (grapes) is compulsory because it is a good source of minerals like Na, K, Mg, Zn, Fe, and vit-C, carotene and source of essential aminoacids etc.

Amla is highly nutritious and is an important dietary source of Vitamin C, minerals and amino acids. The

edible fruit tissue contains protein concentration 3-fold and ascorbic acid concentration 160-fold compared to that of the apple. The fruit also contains considerably higher concentration of most minerals and amino acids than apples. Glutamic acid, proline, aspartic acid, alanine, and lysine are 29.6%, 14.6%, 8.1%, 5.4% and 5.3% respectively of the total amino acids. The pulpy portion of fruit, dried and freed from the nuts contains gallic acid 1.32%, tannin, sugar 36.10%; gum 13.75%; albumin 13.08%; crude cellulose 17.08%; mineral matter 4.12% and moisture 3.83%. Along all these things and generally light, cold and sweet beverages, freshly cooked food which the pregnant woman likes should be given frequently in small quantity.^[35] All these improve the physical health and to some extent mental health also, but basically for mental improvement using the sandal wood in the form of paste over the body, flowers, musk, massage of oil mixed with essential oil, walking in the garden, moonlight bath, soft bed, cool air, anabolic and gratifying food, embracing beloved and other pleasing mood of life, etc gives a soothing effect over the mind and removes the stress and improve the physical and mental condition of the pregnant woman.^[36]

First trimester

After the description of normal articles which is more beneficial during pregnancy, the monthly schedule of diet according to the condition of the pregnant woman, like in the first three months generally use of cold, sweet, liquid and more minerals containing diet frequently in small quantity like milk sweetened with honey, krisara (khichari) etc should be consumed. During this period woman mainly suffers with nausea and vomiting which leads to dehydration and loss of nutrients. Due to this reason, diet of the lady should contain easy digestible, liquid and sweet in small amount which fulfill the loss of water, nutrients and provide the energy quickly. Liquid and small amount don't aggravate the nausea and vomiting.

Second trimester

After first trimester, for the growth of the fetus give cooked Sali and Sasti rice with Takra (butter milk),

Ayurvedic diet chart (for one day) for pregnant lady^[38]

S. No.	Ayurvedic diet	Requirement level
1	Old Sali / Sasti rice	200 g
2	Wheat flour (Whole)	200 g
3	Milk	500 ml
4	Curd	250 g
5	Pulses (dal)	40 g
6	Green vegetables	40 g
7	Fruits	2 pieces
8	Grapes/Amla	30-50 g
9	Draksha	4-5 pieces
10	Butter	20 g
11	Ghrit (cow's)	10 g
12	Oil	5-10 g
13	Honey	30 g
14	Jiggery	10 g

pleasant food mixed with milk and butter gives good bioavailable protein and iron for the growth of the fetus. In the fifth month Sali, Sasti rice with milk or cooked with milk in the form of payasa, milk mixed with ghrita, and pulses for the growth is given. At the end of sixth month pedal edema or whole-body edema occurs, for this ghrita medicated with gokshura is mentioned. Gokshura is a good diuretic and also remove the retention of urine. Rice with ghrita is also given during the second trimester to improve the health of the mother and the fetus.^[37] In the second and last trimester more, requirements of fat and protein is necessary for the growth and development of fetus. According to Ayurveda mamsa dhatu holds the meda dhatu, this may be the reason that protein is also advised in large quantity along with fat (ghee and butter in Akshapraman). Gradually from first to last trimester Vata dosha is aggravated, so for the pacification of Vata dosha intake of snigdha ahara is very important.^[27]

Third trimester

Edema persists in the last trimester; in the seventh month the medicated ghrita (medicated with Prithakparnyadi group like Prithakaparni (*Uraria picta*), Gokshura, Castor (root), Satavari (*Asparagus racemosus*), Vidrigandha (*Pueraria tuberosa*) etc is advised mainly to remove the edema and it also helps in the growth and development of the fetus. Prithakaparnyadi group suppress the Vata and pitta, acts as a good diuretic and as a growth promoting agent. In the last of third trimester due to pressure of the gravid uterus over the large intestine and effect of progesterone, the pregnant woman will have constipation and so anuvasana and niruhavasti (enema) is advised, which relieves the constipation and suppress the aggravated vata. Vasti also stimulates the autonomous nervous system governing the myometrium and helps in the regulating their function during labor.^[27] Milk and drugs of the Madhura (sweet) group like Satavari, Vidarikanda etc. has been advised for entire pregnancy period. Milk is the wholesome diet and these drugs help in the maintenance of proper health of mother and growth and development of the fetus.^[37]

CONCLUSION

Ayurveda lays great deal of emphasis upon proper diet for the preservation and promotion of positive health, and prevention and cure of diseases. For each and every disease wholesome and unwholesome (pathya and apathya) food ingredients have been specified. If a person suffering from any disease follows strictly the regulations of diet; he may not require medicine, but if he does not follow the regulations of diet, medicine may be fruitless. Food taken in proper quantity provides strength, vigor, good complexion and nurtures the health of the tissues. In order to live healthy, one must live in harmony with his surroundings and follow a diet suitable to one's own bodily constitution. Ancient scholars of Ayurveda were very much aware about the need of maternal care during pregnancy. Garbhini paricharya prescribed during samhita period are very much cope with Antenatal care set by modern gynecologists. Use of milk and other liquid diet in first trimester of pregnancy is essential to avoid dehydration and malnutrition and other complications of pregnancy. Gokshura and drugs of Prithakapanyadi group help in preventing edema which is very common after second trimester. Use of basti (enema) in last trimester is essential to relieve constipation, strengthen myometrium and helps in regulating their function during labour. Garbhsthapaka drugs are used during pregnancy to counteract any etiology of abortion or intrauterine death if present and results in healthy baby. Diet of pregnant women is very important for maintenance of her own health, proper nourishment and growth of the fetus. This holistic regimen advised during various stages of pregnancy and childbirth comprising of thoughts, action, dietary modifications and herbs aims to ensure a healthy and smooth childbirth and at the same time sustain the overall health, nutrition and wellbeing of both the woman and the baby. The measures are simple, easy to follow by women and families at the household level since the emphasis is on the use of locally available resources, and Ayurveda can contribute very effectively to the health of the mothers and children, locally as well globally.

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