

Insightome[®]

Your Genetic Insights for a Healthy Pregnancy

Phase 3: Nutritional Counselling



India's Most Comprehensive
AI Based Personalized Genomics Test

Customer ID - 10017

Dear Sarvani Loya,

We are pleased to provide you with your personalized Nutrition Counselling report. This report is based on the analysis of your DNA sample and personal information shared for the counselling process. The personalized recommendations contained in this report, can be a ready reference for you and your healthcare provider, to help you achieve optimal nutritional status for a healthy pregnancy. In this way, you can create a pregnancy focused nutrition plan to maximize your genetic potential and overall health and start to eat according to your genes!

Nutrigenomics is the study of how diet interacts with your genes and how individual genetic differences can affect the way you respond to vitamins, minerals, and compounds in the foods we eat. The goal is to help develop an approach to nutrition and health based on one's unique genetic blueprint.

In this report we have developed a series of nutrition recommendations for your pregnancy that are aligned with your genetic profile. As new discoveries in the field of nutrigenomics are made, you will have the opportunity to access this information to further fine-tune your personalized nutrition and fitness plan. We will continue to update you with these developments.

Why Nutritional Counselling is important in pregnancy?

Results from Global studies: Meta-analysis of studies that assessed the impact of nutritional education and counselling during pregnancy on maternal and neonatal health outcomes has shown significant correlation between both. The pregnancy parameters included anaemia, gestational weight gain and birth weight. The studies were conducted in the USA, the UK, Australia, India, Egypt, Nepal, Sri Lanka, Finland, Argentina, Colombia, Mexico, Brazil, Greece, Senegal or China. Results of the review were as follows:

Maternal Outcomes: Nutritional education and counselling was associated with significantly greater gestational weight gain (MD 0.45kg, 95% CI 0.12 to 0.79; $I^2=42%$; 13 studies; 16 comparisons) and significantly reduced risk of anaemia in late pregnancy (RR 0.70, 95% CI 0.58 to 0.84; $I^2=71%$; 11 studies; 12 comparisons), compared with controls.

Fetal and Infant Outcomes: Nutrition education and counselling significantly improved mean birthweight (MD 105.2g, 95% CI 17.7 to 192.7; $I^2=77\%$) and significantly reduced the risk of pre-term birth, compared with controls (RR 0.81, 95% CI 0.66 to 0.99; $I^2=0$).

Research from India: Another research study conducted in India revealed that nutrition counselling during pregnancy can be effective in increasing maternal weight gain. The weight gain of subjects in the experimental group was significantly ($P\leq 0.05$) higher during 5th, 6th, 7th, 8th and 9th month of pregnancy. About 60% of the subjects in experimental group and only 3 per cent in control group had 10-12 kg of weight gain during pregnancy.

It can, therefore, be concluded that there was a significant and positive impact of nutrition counselling during pregnancy on maternal weight gain and a sound healthy baby. Thus, nutrition counselling during pregnancy should be given utmost importance in reducing maternal and foetal morbidity and mortality



Discussion

Already mentioned



Main Concern

Hypothyroidism GI issues bloating milk intolerance nausea at times

Insightome 4-step nutritional path towards a healthier pregnancy

(Follow these simple steps to eat your way towards a healthier pregnancy)



Insightome Nutritional Takeaways



Your Current BMI



Your Results And Dietary Principles



Do's and Don'ts of pregnancy diet

Your Personalized Nutrition Counselling Takeaways



Your Nutritional Intervention Summary

1. Evaluation

- Needs appropriate dietary modification
- Protein intake needs to be increased , energy and protein as per Nutrition guidelines during pregnancy
- Hydration and antioxidants intake to be improved

2. Suggestion

- Adequate energy and protein planned
- 3 to 4 liters of water recommended per day
- Antioxidants in the form of fruits and vegetables 6 serves have been recommended , anti-inflammatory diet has been suggested

2. Suggestion (continued)

- Natural digestive using condiments have been suggested
- Light physical activity of 30 minutes has been advised
- Milk quantity has been reduced, low lactose milk products and coconut milk have been suggested
- Re -trial of egg whites in the form of pancakes suggested
- Functional foods have been recommended
- Assessing bile acids may be needed to rule out cholestasis if itching persists further
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Your current height (cms): 165 cms

Your current weight (Kgs): 83

Your current BMI : 30.5 Kg/m²

What is BMI ?

BMI or body mass index is a measure of body fat based on height and weight and can help you understand if you are at a healthy weight for your height.

Use this formula to calculate your BMI

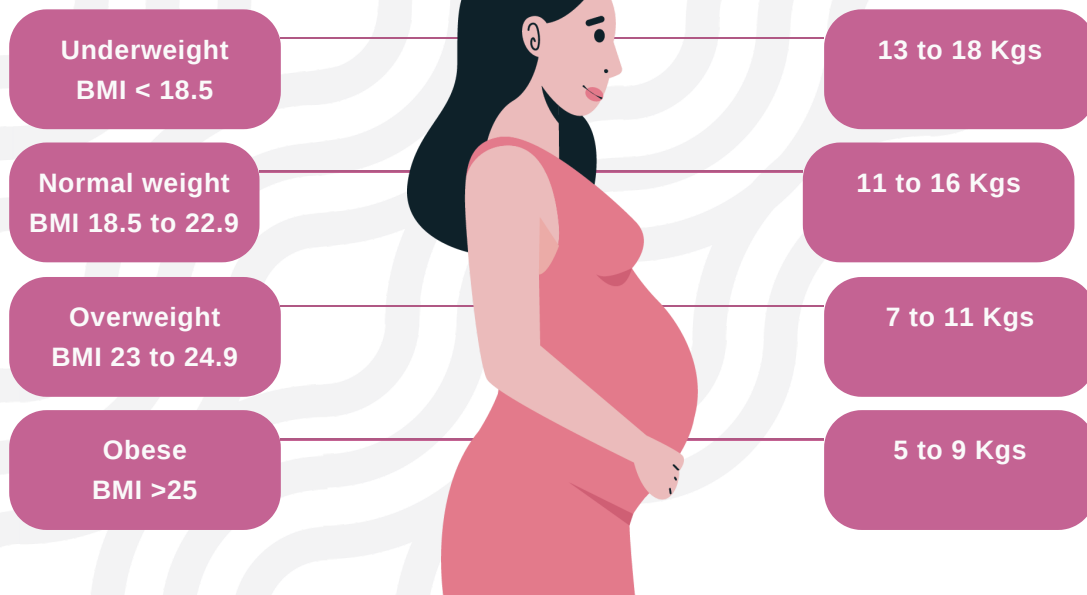
How to calculate your Body Mass Index (BMI)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)} \times \text{height (m)}}$$

If you are pregnant, gaining an appropriate amount of weight is important to protect your health and the health of your baby.

If you start your pregnancy as

You should gain...



Recommendations to maintain your BMI

Maintain BMI between 18.5-22.9 with regular physical activity ((30 to 45 minutes of moderate intensity exercise) and a healthy eating plan as advised by your doctor.

Your Results & Dietary Principles:

Your Insightome test has reflected the following traits with Elevated and Moderate predispositions. We are listing the dietary principles & recommendations focused on these predispositions for improved pregnancy outcomes.

Preeclampsia focused Nutritional Interventions			
Your Dietary Principles	Suggested Parameters(To be assessed strictly under clinicians supervision)		Your Personalized Dietary / Lifestyle Recommendations
	Physiological	Markers	
<ul style="list-style-type: none"> - Vitamin D Magnesium rich diet (evidence suggests beneficial effect of Mg²⁺ and Vitamin D for the mother and fetus.) - Omega-3 fatty acids (with high DHA) - Calcium intake(only when you have low serum levels) - Prebiotic and Probiotic for improved gut microbiota - Dietary fibre & Low Salt (improves BP management) 	<p>1. Monitor weight gain during pregnancy and follow the norms for weight gain based on pre-pregnancy BMI.</p>	<p>Assessment of following parameters is recommended:</p> <ol style="list-style-type: none"> 1. Monitor BP and recommendations for salt restriction. 2. Monitor Blood Sugar Level Inflammatory markers, 3. Antioxidant status, Vitamin D status Magnesium levels, calcium levels, and omega 3 status <p>3. It is crucial to assess renal function, lipid profile and thyroid function as well.</p>	<p>Nutritional Recommendations:</p> <ol style="list-style-type: none"> 1. Antioxidant through natural diet (Vitamin C, A, E, selenium, copper, omega 3 fatty acids) 2. Supplementation of Vitamin D based on serum levels and periodic monitoring of it. 3. Improving intake of magnesium rich foods (Nuts, oil seeds, avocados, pumpkin, spinach , bananas , whole grains) at least 2 servings of rich sources daily to ensure adequate intake 4. Natural probiotics (curd, fermented foods) and prebiotics (onion, garlic, bananas, etc.) Monitored weight reduction & pre-natal exercise 5. Monitored weight reduction & pre-natal exercise 6. Avoid hidden sources of salt like packaged, processed food. <p>Physical activity: Moderate physical activity – 30 minutes of daily walk or as advised by your treating doctor</p> <p>Stress management: Spiritual health meditation, yoga and breathing techniques</p>

BP, blood pressure; BMI, body mass index,

Preterm Birth focused Nutritional Interventions

Your Dietary Principles	Suggested Parameters (To be assessed strictly under clinicians supervision)		Your Personalized Dietary /Lifestyle Recommendations
	Physiological	Markers	
<p>Improve anti-inflammatory antioxidant levels in your diet (vitamin A, carotene, vitamin C, E, selenium, polyphenols) as they help reducing free radicals and reduce inflammation and chances of infection, which are key to preventing pre-term births</p> <p>-Eliminate processed foods as they are pro-inflammatory</p>	<ol style="list-style-type: none"> 1. Monitor BMI, weight gain as it can trigger inflammation during all 3 trimesters 2. Monitor foetal growth and development 3. Stress levels 4. Physical activity 	<p>Assessment of following parameters during all 3 trimesters is recommended:</p> <ol style="list-style-type: none"> 1. Oxidative stress markers and inflammatory markers (CRP, IL-1β, IL-17A, IL-6) 2. Serum vitamin B12 and homocysteine levels 3. Blood sugar levels 4. Food allergy assessment 5. Check autoimmune traits 6. Monitor gut microbiome 	<p>Incorporate following antioxidants and Anti-inflammatory sources:</p> <ol style="list-style-type: none"> 1. Vitamin A as retinol: Milk and milk products, animal foods 2. Carotene: All dark green leafy vegetables, yellow orange fruits and vegetables* 3. Vitamin C: Citrus fruits, guava, Indian gooseberry (amla) 4. Vitamin E: Almonds, Sunflower Seeds, Kiwi 5. Selenium: Sea food, meat, eggs, mushrooms, beans, lentils, legumes, cheese, bananas, spinach. 6. Polyphenols: Fruits like grapes, cherries, berries, apple, pear, cocoa, cereals, dry legumes, red radish, spinach, broccoli, lettuce, carrot 7. Supplementation of antioxidants and polyphenols (based on levels)

*except papaya. BMI, body mass index; IL, interleukin

Liver Disease focused Nutritional Interventions

Your Dietary Principles	Suggested Parameters (To be assessed strictly under clinicians supervision)		Your Personalized Dietary /Lifestyle Recommendations
	Physiological	Markers	
<p>-Small meals</p> <p>-Inclusion of natural digestives and herbs</p> <p>-Improve dietary fibre intake</p> <p>-Restrict visible fats (especially saturated fats)</p> <p>-Choose plant protein sources (to decrease intake of aromatic amino acids) to preserve liver health</p> <p>-Adequate hydration to override water loss associated with vomiting</p> <p>-Vitamin C and other anti-oxidants for their anti-inflammatory properties</p> <p>-Salt restriction to preserve liver health</p>	<p>1.Rule out issues related to gastric motility, starvation, hormonal and physiological factors</p> <p>2.Check for nausea, vomiting, dehydration, constipation</p> <p>3.Assess for pruritis</p>	<p>Assessment of following parameters is recommended:</p> <p>1.Monitor BP</p> <p>2.Liver profile tests</p> <p>3.Lactic acidosis</p> <p>4.Protein in urine</p> <p>5.Transaminases (mild to severe elevation)</p> <p>6.Watch for severe elevation of transaminases and microvascular fatty infiltration</p>	<p>1.Adequate hydration to improve digestion (water and other liquids)</p> <p>2.Small frequent meals, rather than larger meals</p> <p>3.Protein should be divided equally throughout the day to have a low residue effect</p> <p>4.Natural digestives to be consumed daily (10 gms or 2 tsp)</p> <p>5.Encourage consumption of extracts from natural herbs like ginger, mint, basil leaves, fennel seeds, ajwain, cumin seeds to reduce nausea</p> <p>6.Dietary fibre (10-15 gms/Kcal) in case of constipation</p> <p>7.Increase intake of antioxidants (vitamins and minerals in the form of fruits and vegetables)</p> <p>8.Total dietary fat to 15% of total energy and 90% out of this should be MCT fat</p> <p>9.Saturated fat < 8% of total energy</p> <p>10.Restrict intake of saturated fats (ghee, butter, cream)</p> <p>11.Consume plant proteins like legumes, beans, nuts, soybean, chickpeas, etc.</p> <p>12.Egg white can be consumed</p> <p>13.Reduce intake of non-vegetarian foods which contain high amounts of aromatic amino acids which are metabolised in the liver</p> <p>14.Vitamin C and other antioxidant rich foods like fruits, vegetables, nuts, legumes.</p> <p>15.Consult with your doctor for appropriate medical and nutritional management and supplementation</p>

Note: Pregnancy-unrelated or pre-existing liver disease (cirrhosis, portal hypertension, viral hepatitis, hepatitis B,C,E, NAFLD, Wilson's disease, autoimmune liver disease, etc. which are co-incident with pregnancy, warrant supportive and symptomatic management specific to each condition

**Zinc Deficiency focused Nutritional Interventions
(WHO recommended daily dose: 14.5 mg per day)**

Your Dietary Principles	Suggested Parameters (To be assessed strictly under clinicians supervision)	Your Personalized Dietary / Lifestyle Recommendations
<p>-Prefer animal sources for zinc - more bioavailable</p> <p>-Pre and Probiotics, as Zinc deficiency can lead to reduced gut microbiome diversity and symbiosis.</p>	<p>-Assess your serum zinc / RBC zinc Levels periodically</p> <p>-Rule out chronic GI syndrome (Malabsorption syndrome)</p> <p>-Get your Gut microbiome assessed</p> <p>-Monitor BP and take measures accordingly as Zinc deficiency can predispose you to Hypertension.</p>	<p>1. Zinc is widely distributed in diverse food sources such as meat, fish, shellfish, and, nuts, legumes, grains etc.</p> <p>2. Gut microbiome specific diet can be beneficial. Pre and probiotic supplement depending on the extent of dysbiosis to be taken</p> <p>3. You may need dietary modifications ensuring adequacy of non- starch polysaccharide intake like beans (e.g. lentils, peas and chickpeas), barley</p> <p>4. Specific elemental zinc dose supplementation may be needed.</p>

RBC; red blood cells, GI, gastrointestinal; BP, blood pressure

Choline Deficiency focused Nutritional Interventions
(WHO recommended daily dose: 420-450 mg per day)

Your Dietary Principles	Suggested Parameters (To be assessed strictly under clinicians supervision)	Your Personalized Dietary / Lifestyle Recommendations
<p>Choline replenishment is important both - at pregnancy and lactation phases as:</p> <ul style="list-style-type: none"> -The transport of choline from mother to foetus depletes maternal plasma choline in humans. -Because human milk is rich in choline, lactation further increases maternal demand, resulting in extended depletion of tissue stores. 	<ul style="list-style-type: none"> -Check serum choline levels during pregnancy and also during lactation 	<p>Choline rich food sources:</p> <ol style="list-style-type: none"> 1. Animal origin food sources are liver, eggs; egg yolk especially, human milk chicken etc. 2. Plant based diets are wheat germ soybean, nuts and legumes fair amount in almonds, oats, quinoa some vegetables like cauliflower, beetroot, spinach

Do's and Don'ts of pregnancy diet:

Do's



- Vitamin C rich fruits like Gooseberries (Amla), Guava and Orange should be included in the diet to improve iron absorption of plant foods
- Add green leafy vegetables and other vegetables to your daily diet (eg. Methi roti, Palak roti, Vegetable idli, Vegetable dosa)
- In case of nausea and vomiting, take small and frequent meals (4-6 times/day)
- Expose yourself to direct sunlight for atleast 15 minutes to get sufficient Vitamin D
- Avail supplementary nutrition from Anganwadi Centres and micronutrient supplements as per doctor's advice
- Add variety of food items to your daily diet so that daily requirement of all the nutrients can be met
- Consume green leafy vegetables, legumes and nuts as they are good sources of folic acid

Don'ts



- Smoke or chew tobacco and consume alcohol
- Consume carbonated beverages
- Eat cooked food made with hydrogenated fat
- Expose yourself to direct sunlight for atleast 15 minutes to get sufficient Vitamin D
- Sleep immediately after eating any meal
- Wash vegetables after peeling
- Consume tea, coffee and other caffeine drinks along with meals or after meals
- Lift heavy objects or do strenuous physical activities

Points to keep in mind for diet of pregnant woman

- Type of recipes, time of consumption and frequency may vary according to the region and cultural preferences and convenience but amounts provided in the diet chart need to be followed to meet adequate dietary requirements
- Use up to 30g oil (20g of vegetable oil and 10g butter or ghee) per day for Normal Pregnant Woman, 35g oil (25g of vegetable oil and 10g butter or ghee) for Undernourished Pregnant Woman and 20g oil (15g of vegetable oil and 5g butter or ghee) for Overweight Pregnant Woman
- Use double fortified salt (iron + iodine) during preparation of the meal. restrict salt usage to < 5g per day
- Cereals may be replaced twice or thrice per week with millets (Nutri-cereals), use whole wheat and less polished rice and avoid wheat flour and highly polished rice.
- Vegetarians can substitute *egg/*chicken /*fish/*meat with 30g of pulses/ paneer.
- *Non vegetarians can replace pulses with *egg/*chicken/*fish/*meat
- *Flesh foods: Instead of 30g/day, one can consume 60–100g twice or thrice in a week
- BMI (Body Mass Index) calculated using weight in Kg divided by height in meter square
- Normal (BMI 18.5 - 23.0) Pregnant Woman should gain minimum 10kg, Undernourished (BMI < 18.5) Pregnant Woman should gain minimum 13kg, Overweight (BMI > 23.0) Pregnant Woman should gain 7-10kg by term

*Non-veg food items are advised ONLY as per regional, religious and cultural acceptance & availability/affordability.
<https://wcd.nic.in/sites/default/files/Diet%20Chart%20For%20Pregnant%20Women%20East%20India.pdf>