

Maternal Nutrition

She's
the
FIRST

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*The story of the baby
begins
much before birth.....*



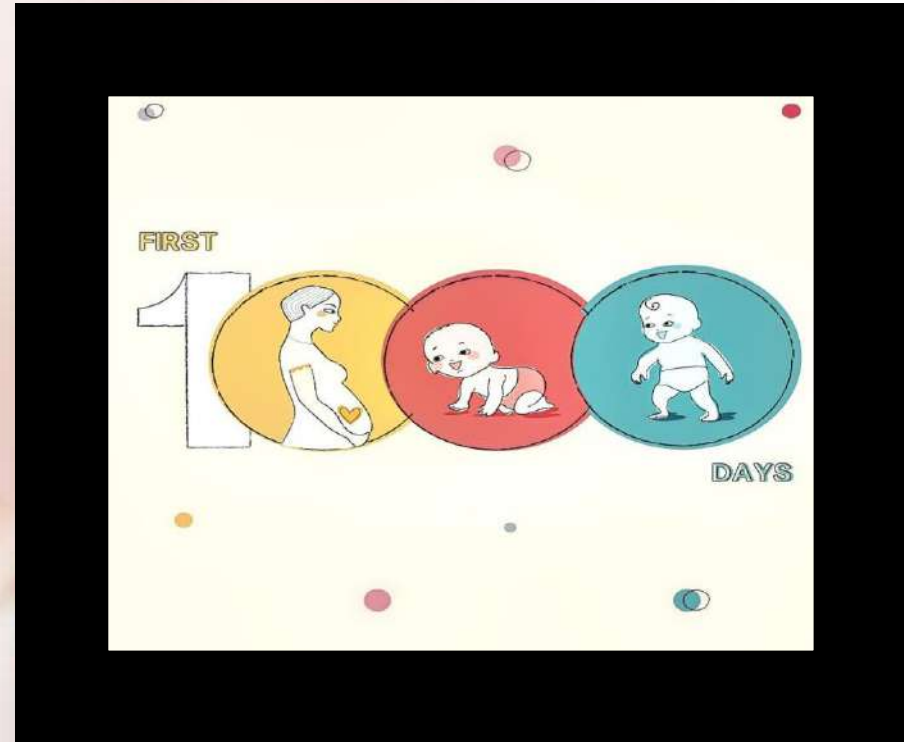
Key Points of the session



- Maternal malnutrition
- Impact of malnutrition on maternal and child health
- Nutrition before during and after pregnancy
- Special attention on Critical nutrients to prevent nutritional deficiencies

Introduction

- Optimal maternal nutrition during the first 1,000 days is critically important to improve nutritional status and health outcomes for women and their infants and also to reduce the risk of adverse birth outcomes, such as low birthweight (LBW) and preterm birth.
- It is also known that poor nutritional conditions before and during pregnancy can induce short-term and lasting changes in the size, composition and metabolic responsiveness of the offspring.



Good Nutrition is Mandate during Pregnancy and Lactation

- Demanding physiological state
 - Optimal weight gain during pregnancy
 - Twin factors of physical activity and active production of breast milk
- Maternal malnutrition leads to high prevalence of low birth weight infants and very high maternal mortality
 - Complications of pregnancy and childbirth are the leading cause of death in young women in some of the developing countries

Impact of Malnutrition

- ❖ Effect of malnutrition on foetus
- ❖ Effect of malnutrition on placenta
- ❖ Effect of malnutrition on maternal health
- ❖ Effect of malnutrition during infancy

Malnutrition and Foetus

Chronic moderate malnutrition and anaemia during pregnancy may result in Still birth and Low Birth Weight (LBW) babies weighing less than 2500g.

A large number of such babies are premature (<37 weeks of gestation) and rest suffer from Intra Uterine Growth Retardation (IUGR) which results in babies which are Small For Date (SFD) i.e. infants born after 40 weeks of gestation but small because of malnutrition during intrauterine growth.

Effect of Malnutrition on Placenta

The placenta of malnourished mothers have fewer cells than well nourished mothers.

The reduction in the number of cells reduces the ability of the placenta to

- Synthesize substances required by the foetus
- Transfer nutrients
- Inhibit the passage of potentially harmful substances to the growing foetus

Effect of malnutrition on maternal health

A malnourished mother supplies nutrients to the foetus at the expense of her own tissues.

Multiple micronutrient deficiencies during pregnancy like iron and folic acid are common and are associated with complications during pregnancy and labour.

This may lead to abortion and even death of the mother.

Effect of malnutrition during infancy

Infants develop nutritional deficiency diseases like rickets, anaemia or suffer from infectious diseases due to low resistance.

Undernutrition and Obesity

- Malnutrition, including underweight, short stature, anemia and overweight, affects millions of women around the world, including during the nutritionally demanding periods of pregnancy and breastfeeding.
- Globally, approximately **170 million** women (9.1 per cent) are **underweight**, while three times as many women (**610 million** or 32.5 per cent) are **overweight**.
- At the same time, the prevalence of overweight and obesity among women has increased over the past three decades and now affects more than half a billion (610 million) women.

Inadequate diet leads to

- Women's diets in many countries contain limited fruits, vegetables, dairy, fish and meat.
- During pregnancy, poor diets lacking in key nutrients – like iodine, iron, folate, calcium and zinc – can cause anemia, pre-eclampsia, hemorrhage and death in mothers.
- UNICEF estimates that low birthweight affects more than 20 million newborns every year.

Maternal Stunting

- Maternal stunting (height < 145 centimetres)and underweight (low body mass index [BMI]) during early pregnancy are associated with increased risk of poor fetal growth.
- Lancet series found that LBW infants with intrauterine growth restriction are at significant developmental risk—including lower cognitive scores, poorer problem-solving skills, and behavioral issues
- Children who are malnourished are more likely to become adolescents and adults who are malnourished, contributing to a vicious cycle.

Maternal Nutrition –The Priority

All pregnant women require nutritious diets containing adequate energy, protein, vitamins and minerals, along with adequate services and practices for optimal maternal and new-born outcomes.

Ensuring these nutritional needs are met during pregnancy requires a comprehensive approach that includes

- ❖ Counselling on nutritious diets
- ❖ Monitoring appropriate weight gain
- ❖ Micronutrient supplementation
- ❖ Deworming prophylaxis as appropriate.

Macro nutrients

- The energy requirement during pregnancy is often overestimated in the belief that pregnant and breastfeeding women need to “eat for two”.
- In fact, the energy requirement is only minimally increased during pregnancy.

- Energy requirements are generally the same as non-pregnant women in the first trimester and then increase in the second trimester, third trimester estimated at 350 kcal and 25 g of additional protein and fat not more than 30% of energy.

Think for two-but don't eat for two

Micronutrients-Iodine

- The main concern of mild iodine deficiency during pregnancy and breastfeeding is its effect on the brain of the unborn child and growing infant, in particular, reducing the intelligent quotient.



Spinach



Potato
with skin



Iodized
salt



Milk



Curd



Fish



Boiled Egg

Folic acid and Iron

- Folic acid deficiency can lead to a child born with birth defects, involving the brain and spinal cord.
- Good sources of folic acid, consumed especially 3 months conception and during the first 3 months of pregnancy protect child.

- In a recent study in China, children born to mothers with iron deficiency anaemia in late pregnancy had a significantly lower mental development index score than children of non-iron-deficient mothers.
- Even mild iron deficiency, that may go undetected at times, negatively impacts the child's mental development.



Cabbage



Ladies
finger



Spinach



Carrot



Beans and
Lentils



Orange



Fish



Red
Spinach



Spinach



Cabbage



Radish



Mustard



Gur
(Jaggery)



Boiled Egg



Chicken

Iron

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Red Spinach



Spinach



Cabbage



Radish



Mustard



Gur
(Jaggery)



Boiled Egg



Chicken

Vitamin B12

- Vitamin B₁₂ deficiency is found in those mothers who are strict vegetarians.
- This may lead to an increased risk of birth defects including brain and spinal cord.
- Vitamin B₁₂ supplement is recommended for women who consume ovo-lacto-vegetarian and vegan diets.



Soy milk



Peanuts



Milk



Curd



Fish



Boiled Egg



Chicken

Vitamin D & Calcium

- Vitamin D deficiency occurs in mothers who are not exposed to sufficient sunlight or do not eat food containing Vitamin D and it would affect the foetal bone development.
- Vitamin D supplements are recommended for women who do not drink milk.

- Calcium is essential, both during pregnancy and lactation for
 - ✓ Proper formation of bones and teeth of the offspring,
 - ✓ Secretion of breast-milk rich in calcium
 - ✓ Prevent osteoporosis in the mother.
 - ✓ Deficiencies in calcium and zinc during pregnancy are associated with preterm birth, while iron deficiency anemia during pregnancy is associated with LBW (Black et al. 2013).



Mushrooms



Almond



Milk



Curd



Fish



Boiled Egg



Sunlight (although this is not a food, it is essential for adequate Vitamin D).

Omega - 3 -Fatty Acids

- Omega-3 fatty acids are critical for foetal brain development and have been associated with improved vision in preterm infants, as well as better cardiovascular health later in life.

- Higher mercury levels in children, however, have been associated with deficits in memory, learning, and behaviour.
- Ideally, pregnant women would consume those fish that are low in mercury and high in omega-3 fatty acids such as salmon, sardines, and anchovies.



Leafy Green



Walnuts



Beans



Chia Seeds



Mustard Oil



Rice Bran Oil



Fish

Gestational Hypertension

- In India, the incidence of preeclampsia is reported to be 8-10% among the pregnant women.
 - Salt intake in India is about 11 g per day, exceeding the WHO's recommended maximum intake of 5 g per day
- Reduce salt intake
 - Drink plenty of water (2-3 liters)
 - Take a balanced diet regularly
 - Avoid processed foods
 - Include 4 - 5 Serving of vegetables
 - Include 1- 2 Serving of fruits
 - Do regular exercise

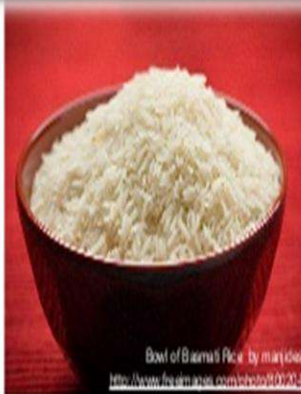
Gestational Diabetes

- ❑ The overall prevalence of GD was 1.3%
- ❑ The prevalence of GD increased with age, from 1.0% among women aged 15 to 19 years to 2.4% among women aged 35 years and older.

- Inclusion of variety of cereals such as unpolished rice, millets and whole wheat
- Plenty of vegetables
- Reduce the portion size
- Eliminate saturated fats

Additional -350 kcal
-15 g Protein
from second trimester onwards

Medical Nutrition Therapy



Reduce salt intake to
<6 g/day for those with
hypertension

Asia Pacific Type 2 Diabetes Policy Group



Fat

Not >30%

Saturated fat
<10%

Carbohydrate

50-55%

Sucrose <10%

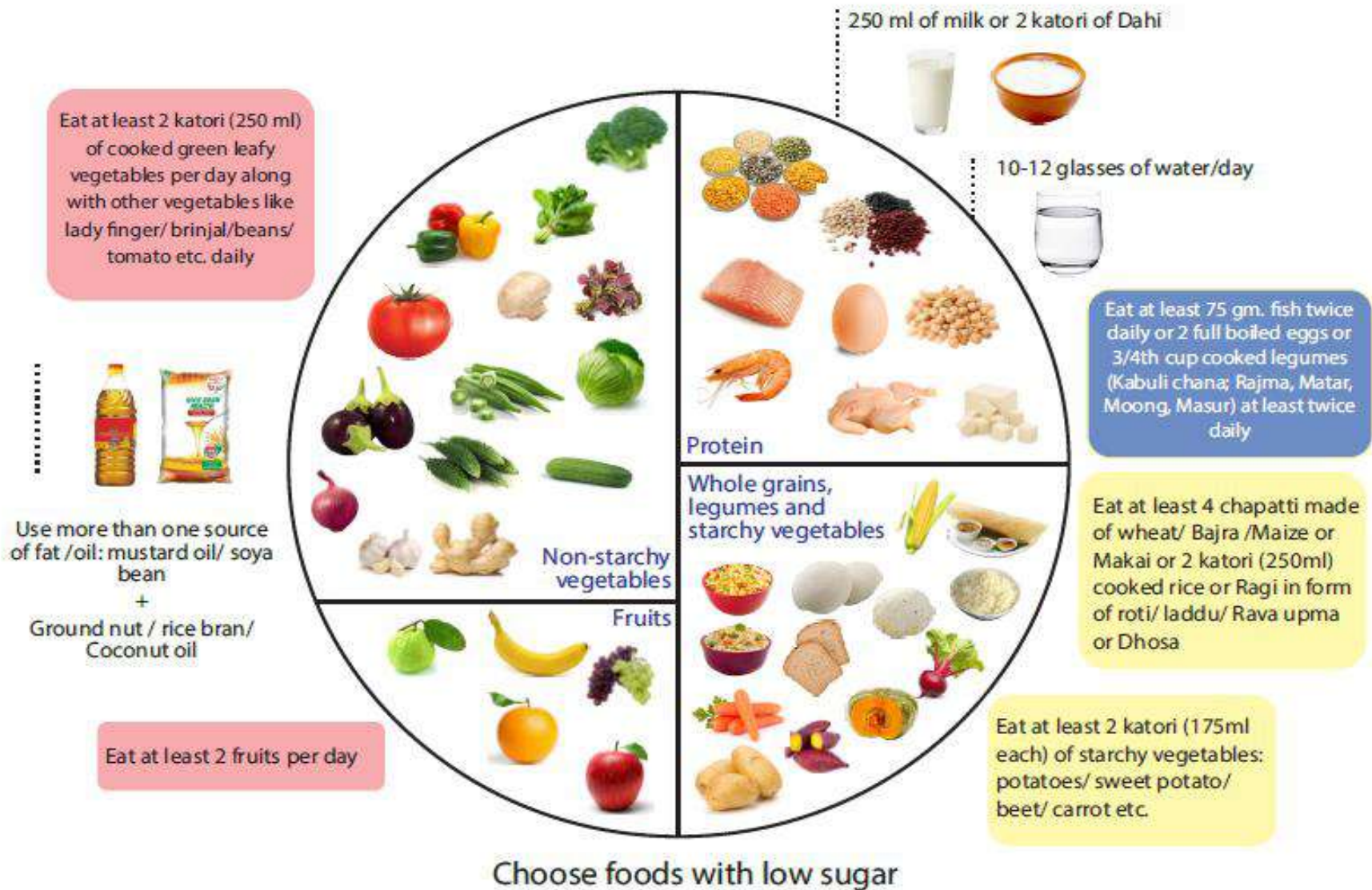
Protein

15-20%

Higher dietary fiber intake
(25-50 g/day) for persons
with diabetes

Canadian Diabetes Association

My Plate-Prefer using variety of local seasonal foods, vegetables and fruits being grown in and around our area



Nutrient Dense Foods

Enriched Roti & Tips to improve nutrient content of recipe

50g wheat flour
25g Dal flour
15 g oil
Milk 75 ml
3 chapattis/ dosa



Use 20 g oil for cooking

Nutritional information per chapathi

Energy (Kcal) 190

Protein (g) 4.67

- *Can add chopped /mashed greens/ vegetables*


- Mix *Cereal + pulse for making porridge/gruel
ratio **3 parts cereal+1 part dal**
- To further enhance the nutrition composition, add
- 1 part oil seeds/ nuts powder
- 1-2 teaspoon oil
- Sathumavu powder 2-3 teaspoons
- milk/curd/panneer/milk powder-1-2 parts

*Can try use mixed cereal combination

Nutrient Dense Foods



Stay Hydrated

- Prevents urinary tract infections
 - Carries nutrients to the baby
 - Used in the amniotic sac
 - Dehydration can cause contractions
- 
- **To stay hydrated, drink more water. Also, avoid loading up coffee or tea with sugar**
 - **Encourage to go for natural drinks . Avoid aerated drinks**

Importance of Exercise

Staying healthy during pregnancy includes not only adequate nutrition but also need enough rest and exercise.

Simple exercises, such as walking, during pregnancy are highly beneficial. It helps the mother prevent to

- Pelvic and back pain,
- Reduces the risk of gestational diabetes and hypertension,
- Improves heart function,
- Reduces constipation,
- Bloating and swelling
- Ensures right weight gain.

Importance of Sleep

- Have 8 hours of sleep at night and at least 2 hours rest during the day.
- A recent study by the Cognitive Neuroscience Society says that continuous sleep deprivation makes the brain more sensitive to food smells. People with such sleeping patterns are more likely to eat unhealthy snacks and junk foods

Tips for a Healthy Lifestyle during Pregnancy and Lactation

Do's

- Healthy, balanced diet
- Moderate weight gain (depending on pre-pregnancy weight)
- Regular moderate physical exercise
- Regular prenatal care visits
- Good work-life balance
- Sufficient amount of clean water

Don'ts

- Excessive caffeine consumption (no more than 2 cups of coffee or 4 cups of black tea/day)
- Raw animal products (meat, fish, or eggs, unpasteurised milk, raw cheese)
- Sugared drinks and juices, high intakes of sugar/sweets
- Limit food with very high content of fat, and salt.

Benefits of Good Nutrition

- Ensuring adequate nutrient intakes may reduce
 - ✓ Risk of maternal anaemia
 - ✓ Incidence of preterm birth
 - ✓ Low birth weight
 - ✓ Risk of miscarriage, stillbirth, and pre-eclampsia.
- Crucial for the baby's growth, bones, visual, and brain development

Conclusion

The birth of the child is a special and unique experience.

The first 1000 days of life, which includes gestation and the first two years of life, are a vulnerable period in human development where eating a healthy balanced diet helps to prevent short and long lasting consequences on human health and function.

The health of a **mother and child** is a more telling measure of a **nation's state** than economic indicators

Harjit Gill

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Open for Questions....

