NUTRITION INFORMATION CENTRE
NICUS
UNIVERSITY OF STELLENBOSCH
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PREGNANT: What should I eat and how much?

The information explosion in the science of nutrition very often creates the impression that available information is contradictory. Consequently, it is no longer easy to distinguish between fact, misinformation and fiction. The Nutrition Information Centre of the University of Stellenbosch (NICUS) was established to act as a reliable and independent source of nutrition information.

For the little one, the very first menu has a lifelong effect!

Many factors influence the outcome of pregnancy, but it is widely accepted that the correct diet in pregnant women, plays a major role in the health of the unborn baby and the mother. A healthy diet also plays an important role especially in the baby's weight at birth. It can furthermore prevent a child from developing obesity and heart disease in his or her later life. It is natural for pregnant women to be concerned about their health and diet. Maintaining a healthful diet, drinking plenty of fluids, and being active are all important for the health of the expectant mother and her unborn baby.

How much weight should you gain during your pregnancy?

A mother should follow a healthy and balanced diet during pregnancy to gain the correct amount of weight and to ensure the health of her baby.

- Women, who are overweight before their pregnancy, should not gain more than 7 to about 11 kilograms during their pregnancy.
- Women, who are underweight before their pregnancy, should gain about 12 to 18 kilograms.
- If you have a normal body weight, you can aim for a weight increase of about 11 to 16 kilograms.

Energy requirements increase during pregnancy, largely as a result of fetal growth and increased maternal body weight. This additional energy requirement is also dependant on the level of physical activity of the expecting mother.

FIRST 3 MONTHS:

During the first 12 weeks or three months of pregnancy there is not an increased requirement for energy intake.

- During the first three months a pregnant woman must be careful not to "eat for two" and in this way gain too much weight.
- You should aim to not gain more than 1 to 2 kilograms in these first months.
- It is only from the fourth month onwards that a pregnant woman's nutritional needs increase.

FOURTH MONTH:

It is very important to eat a variety of foods before conception and during pregnancy. Aim for at least 6 portions vegetables and fruits per day (1 portion is equivalent to one fruit or half a cup of cooked vegetables).

Generally the second trimester requires an additional 1428 - 1512 kJ per day (normal BMI before conception) and the third trimester an additional 1898 - 1982.4 kJ (normal BMI before conception) in the form of:

- Unrefined carbohydrates, which includes whole wheat bread, breakfast cereal, potatoes, pasta and fruit.
- You should also eat at least 3 portions of dairy products such as fat-free milk, yogurt and cheese.
- You can also eat 6 portions of meat or meat substitutes such as lean red meat, chicken, fish, legumes and nuts.

Portion guide for meat and meat substitutes:
1 portion = 30 grams of meat (beef, chicken, pork or fish) OR 30 grams of cheese OR 1 egg OR 2 teaspoons of peanut butter OR half a cup of cooked dry beans

Micronutrients (vitamins and minerals)

Maternal micronutrient status plays an important role in pregnancy and has been associated with various birth outcomes. The body's need for vitamins and minerals also increases during pregnancy, especially for iron, calcium, folic acid and vitamins A, C and K.

Examples of good food sources of **Vitamin A:**
- mango, papaya, yellow sweet melon, apricots, carrots, sweet potatoes, spinach, fortified margarine, fortified milk, liver, kidneys (organ meat contains high levels of pre-formed Vitamin A and should only be eaten in small portions on very special occasions)

Examples of good food sources of **Vitamin C:**
- citrus fruit, kiwi fruit, guavas, strawberries, sweet melon, mango, brussel sprouts, cabbage, peppers, tomatoes

Examples of good food sources of **Vitamin K:**
- broccoli, liver, eggs, dairy products, cabbage, dark leafy vegetables and lettuce

Examples of good food sources of **Iron:**
- red meat, egg yolk, dried fruit, whole wheat products, nuts, legumes

Examples of good food sources of **Calcium:**
- milk and milk products*, nuts, broccoli, sardines with bones, shrimp, salmon, mussels, egg yolk, legumes, cabbage, spinach, sweet potato, oranges
*Calcium from milk products is better absorbed than that from vegetable sources.

Vitamin and mineral supplements:
- You can discuss the use of a good vitamin and mineral supplement with a dietitian or doctor. Supplements are usually prescribed according to your specific needs.
- It is especially difficult to have a sufficient intake of folic acid before and during pregnancy. A supplement of 0.4 mg of folic acid per day is recommended before conception and a supplement of 0.6 mg is recommended during pregnancy. This will help to prevent neural tube defects (inherent defects where the nerves and brain develops abnormally).
- If you have low levels of iron, it is recommended that you use an iron supplement. However, you should not use any vitamin or mineral supplement without prescription or without your doctor or dietitian's recommendation.

Examples of good food sources of **Folic acid:**
- broccoli, wheat, dry beans, cabbage, asparagus, liver kidneys, eggs, lentils, yeast

Essential fatty acids

Large amounts of Omega 3 fatty acid are found in the brain. These fatty acids are important for the growth and development of the baby's central nervous system. Therefore a pregnant woman has increased essential fatty acid requirements during pregnancy. A balanced intake of the essential fatty acids is required for optimal functioning. Recent research suggests that omega-3 fatty acids may prevent premature birth and increase birth weight. Growing evidence indicates that maternal intake of omega-3 fatty acids is beneficial for neurodevelopment and cognitive development in the child.

Two to three portions fatty fish per week during pregnancy should provide enough omega 3 fatty acids when you are pregnant.

Fish high in Omega 3 Fatty Acids:

- snoek, salmon, butterfish, mackerel, anchovies, sardines, pilchards, herring

What about mercury in fish?

Certain types of fish may contain chemicals that can cause health risks for pregnant women. Specifically, fish that have high levels of mercury can harm the developing nervous system of an unborn child or young baby.

Pregnant women should eat 2-3 portions of fish per week that is low in mercury for daily nutrient needs. Examples of fish low in mercury include shrimp, canned tuna (in brine), salmon and snoek as these do not pose an increased health risk.

The FDA, Environmental Protection Agency (EPA), and USDA recommend that pregnant women avoid swordfish, shark, king mackerel and tilefish during pregnancy because these larger fish tend to have higher levels of mercury than other fish.

Suggestion for daily dietary intake of a pregnant woman

Breakfast:
½ a glass of fresh fruit juice
½ a cup of oats cereal
1 slice of whole-wheat toast
2 teaspoons of peanut butter
1 cup of rooibos tea or caffeine–free coffee

Late morning snack:
1 fruit
1 cup of low-fat yoghurt
3 whole wheat crackers or one slice of bread
1 teaspoon of margarine
Marmite
Rooibos tea

Lunch:
2 slices of whole-wheat bread
1 boiled egg
1 teaspoon of mayonnaise
lettuce
1 fruit
1 cup of low-fat yogurt or low-fat milk

Late afternoon snack:
½ a cup of low-fat yogurt or milk
3 whole wheat crackers

Dinner:
1 Toasted chicken breast or a piece of snoek
1 Baked potato or sweet potato
½ a cup of carrots
½ a cup of green beans
2 teaspoons of salad-dressing
Lettuce and tomato

Late evening snack:
½ a cup of low-fat yogurt or milk
1½ cup of strawberries or another fruit

HOW MUCH CAFFEINE?

Caffeine should be limited to about 2 cups of coffee per day. Keep in mind however that some soft drinks also contain caffeine. If you prefer soft drinks to coffee, you may have a maximum of 2 cans (340 ml) of soft drinks containing caffeine per day.

ARTIFICIAL SWEETENERS

- Some artificial sweeteners can be transmitted over the placenta (the blood rich structure, attached to the womb that nourishes the baby during pregnancy). There is however no scientific proof that the sweeteners pose any danger to the baby.
- It would nevertheless be safe to use artificial sweeteners moderately. Pregnant women should rather drink unsweetened fruit juice, fat-free milk or water than artificially sweetened soft drinks.
- Women who suffer from the rare metabolic deviation **phenylketonuria** (PKU) should avoid these sweeteners.

WATER

Although water requirements during pregnancy are usually not markedly increased, an additional 1 liter of fluid may, on average, may be necessary during breast feeding. The Institute of Medicine recommends that pregnant women should drink 2.4 liters (about 10 glasses of 250 ml) of fluids daily and women who breastfeed should consume 3.0 liters or at least 2.71 liters and additional fluids according to thirst (about 12 glasses of 250 ml) of fluids a day.

ALCOHOL

If a pregnant woman consumes alcohol it can lead to the fetal alcohol syndrome. When your baby suffers from this syndrome, he or she can experience slow growth, slow mental development, eye problems, face and skull abnormalities and a low weight at birth. Spontaneous abortion can occur as well as “abruptio placenta”, which is when the placenta tears away from the womb prematurely.

The amount of alcohol, which every individual can consume, differs from person to person. It is therefore difficult to specify a safe intake for all pregnant women. It is recommended that no alcohol be used during pregnancy.

SMOKING

Smokers are inclined to eat less nutritious food during their pregnancy than non-smokers. This affects the nourishment of the baby negatively.

Smoke can also inhibit the blood supply to the growing fetus and can affect the functioning of the placenta. This limits the amount of oxygen that reaches the fetus. Tobacco smoke furthermore contains harmful substances that can lead to the fetus suffering an oxygen shortage. The primary cause of smoke-related deaths of fetuses is oxygen shortage. Nicotine in the smoke travels across the placenta and is harmful to the fetus.

Effects smoking can have on the fetus:

- Low weight at birth
- Spontaneous abortion and premature birth occur more regularly when mothers smoke
- Nerve system disturbances
- The sudden infant death syndrome occurs more regularly when mothers smoke
- Fetal deaths

The more often the mother smokes, the smaller her baby will be. Any pregnant woman or a woman, who wants to become pregnant, should therefore be encouraged to stop smoking.

BASIC GUIDELINES TO HELP KEEP YOUR FOOD SAFE FROM HARMFUL BACTERIA

Pregnant and nursing women, infants, preschool children and the elderly have particular needs that require special care in selecting, storing and preparing food.

- Always wash your hands before touching food or water
- Wash all vegetables and fruit thoroughly
- Avoid touching farm animals
- Boil water for one minute at rapid boil if you are not sure of the source and store in a clean, closed container or use bottled water
- Cook all meat, fish and eggs completely before eating in a hygienically prepared kitchen
- Use only pasteurized milk and dairy products
- Thaw all foods in the refrigerator and not at room temperature
- Keep shelves, counter tops, other kitchen utensils, sponges and towels clean at all times
- Use different cutting boards for foods intended to be served raw than for foods that will be cooked
- Exercise caution consuming foods or beverages out of home or when traveling

Avoid processed cold meats, or deli meats unless they are reheated until steaming hot.
Avoid soft cheeses such as feta, Brie, Camembert and blue-veined cheeses unless they are labeled as made with pasteurized milk. Hard cheeses, semi-soft cheeses such as mozzarella, pasteurized processed cheese slices and spreads, cream cheese, and cottage cheese can be safely consumed.
Avoid eating refrigerated pâté or meat spreads. Canned or shelf-stable pâté and meat spreads can be eaten.
Avoid eating refrigerated smoked seafood unless it is an ingredient in a cooked dish such as a casserole.

Dietary treatment of general problems experienced during pregnancy:

PROBLEM	Possible solutions:	Avoid or Limit:
Nausea and vomiting	• Eat small, frequent meals • Food is best tolerated at cool or room temperature • Eat dry, salty crackers, pretzels, biscuits and cookies • Simple foods such as rice, scrambled eggs, toast, noodles, bananas, mashed potatoes, custards may be better tolerated • Clear, cold non-acidic liquids • Light low-fat foods are better tolerated • Drink enough liquids • Allow plenty of fresh air in the house • Disperse cooking odours	• Cream soups • Fatty / fried foods • Sweet desserts • Avoid lying down immediately after eating
Early satiety during the last trimester	• Eat healthy and nutrient dense foods • Meat, fish, poultry, eggs, milk and dairy products, soups, fruit and desserts • Small, frequent feedings • Discuss supplementation with your dietitian or doctor	• Diet- or low energy beverages
Constipation	• Regular diet with fibre added (whole grains, dried fruit such as prunes, fresh fruit and vegetables, bran, etc.). Fibre-enriched supplements / bulking agents may be beneficial • Drink enough water and include extra fluids where possible	• Any medications that are not prescribed by a doctor

For further, personalized and more detailed information, please contact NICUS or a dietitian registered with the Health Professions Council of South Africa

References from the scientific literature used to compile this document are available on request.

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