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NUTRITION THROUGH THE LIFE COURSE: PART I - PREGNANCY

The health, growth and development of the foetus depend on the nutritional status of the mother before conception and during pregnancy. Women who are underweight or overweight at the time of conception are at a greater risk of developing complications during pregnancy, labour and delivery and having premature and low birth weight infants. However, once pregnant, women should not try to lose weight but should have adequate nutrition throughout pregnancy as this is the time when the foetus requires extra nutritional requirements which can only be met by dietary intake and body stores. It is very important that the foetus receives adequate nutrition especially at the first trimester as this is the period when rapid cell division and differentiation to form embryonic systems and organs takes place.

A varied healthy balanced diet is needed during pregnancy to provide all the essential nutrients required for infant and mother. Meals should be based on a combination of foods from the six food groups; staples, foods from animals, legumes and nuts, vegetables, fruits and fats and oils. Exercise is also important as it promotes health and well being of both mother and infant. Studies have shown that women who exercised during pregnancy had fewer surgical births and had infants who were stronger than those who did not. An active woman experiencing a normal pregnancy can continue to exercise throughout pregnancy but the intensity and duration should be reduced. Good exercise choices for pregnant women include brisk walking and swimming.

Exercise during pregnancy is not without risk and therefore consultation with a physician should be done before starting an exercise programme.

Meeting Nutritional Needs

ENERGY

Several changes occur in the woman's body during pregnancy such as formation of the placenta and amniotic fluid, enlargement of the breast and uterus, an increase in blood volume and increased deposition of maternal stores and foetal tissue. These changes require an increase in energy and nutrient intake in order to have a healthy infant.

There is very little increase in energy in the first trimester of pregnancy. An additional 300

kilocalories will be needed during the second and third trimesters for foetal growth and development. It is essential that the required amount of extra energy be provided so that protein will be spared as it is needed for growth.

The increase in food intake which leads to weight gain is required to support changes that the body is going through and for foetal body processes. Weight gain should be slow and gradual. Adequate weight gain during pregnancy is needed for optimum growth and development of the foetus. It is recommended that the mother should gain 2-4 lbs during the first three months and 1lb per week thereafter.

Women gaining weight too rapidly should seek medical advice to rule out non-dietary causes. If it is related to eating patterns they should reduce consumption of fat and sugar rich foods and snacks and consume more nutrient dense foods such as fruits and vegetables, low fat dairy products and cereal foods. Women with poor weight gain should improve energy and nutrient intakes and should be counselled by a nutritionist/dietitian.

Folate

Folate is very crucial in early pregnancy to protect against neural tube defects in the foetus. Megaloblastic anaemia is the most advanced stage of folate deficiency. Folic acid is essential for the development of DNA and

plays a significant role in cell growth and development. Folate levels can be increased by consuming a well balanced diet containing folate rich foods such as fortified breakfast cereals, enriched breads, green leafy vegetables (spinach, broccoli and lettuce), dried beans, orange juice, lean beef and liver. It is possible to obtain the recommended amounts of folate from foods, however, supplements are recommended as a preventive strategy. It is also recommended that women of child bearing age should ensure that they include food sources of folic acid in their daily meals. This will help them to have adequate stores at conception because the neural tube closes by 28 days of gestation (an age when most women do not realise they are pregnant).

Calcium

Calcium is very important during pregnancy for bone growth in the developing foetus and to keep the mother's bones healthy. Hormonal changes in pregnancy increase the absorption and use of calcium. The increased intestinal absorption of calcium occurs early in pregnancy to meet the calcium needs of the developing foetus.

The recommended calcium intake for a pregnant woman in the Caribbean is 1000 mg a day. Pregnant women should ensure that they consume adequate amounts of calcium rich foods such as milk, cheese, yogurt, broccoli, sardines, beans and nuts to meet their daily requirements.

High Risk Pregnant Women

TEENAGE MOTHERS

The prevalence of teenage pregnancy in the Caribbean is 15-20%. A teenage girl who is pregnant will have great demands for nutrients and energy because of the rapid growth she is still undergoing and needs to nourish the developing foetus. If the nutrition is not adequate, this can pose a health threat for both infant and mother. Very young teenage mothers and those who are undernourished at the time of conception have the greatest nutritional requirements and are at increased risk for complications during pregnancy and delivery. This can result in babies of low birth weight and or premature infants and an increased risk of infant mortality and morbidity.

The chances of producing a healthy infant are significantly increased if the mother's diet is adequate throughout pregnancy and weight is gained appropriately. The weight gain for a pregnant teenager should be higher than that for the adult woman in order to support the needs of mother and infant. The recommended weight gain for teenagers with a normal pre-pregnancy weight is 30 to 35 lb while those with a lower weight should gain about 35 to 40 lb.

Pregnant adolescents should be encouraged to consume nutrient rich foods which are not

only high in carbohydrate but also protein, minerals, vitamins and fibre in order to gain the recommended amount of weight. Foods that should be encouraged include wholegrain bread, rice, pasta, ground provision, cereal, fruits and vegetables, milk, yogurt, meat, fish, eggs, peas and beans. They should also eat regular meals and snacks. Teenage mothers calcium requirements are high as they have not yet achieved peak bone mass and density and as a result they should consume adequate amounts of calcium rich foods to prevent calcium deficiency and osteoporosis later in life. Good sources of calcium include dairy products, peas and beans, nuts, fish with edible bones and dark green leafy vegetables.

WOMEN WITH HIV

Optimal nutrition is important for persons who are HIV positive to protect and maintain a healthy immune system and to delay the onset of the disease. However, if the disease progresses, energy and protein requirements are increased due to the increasing viral load, fever and opportunistic infections.

Due to the increased energy and nutrient requirements associated with HIV infection and the nutritional demands of pregnancy, HIV-positive pregnant women are at increased risk of developing nutrient deficiencies. They will need to consume extra energy, protein and micronutrients. They should be referred early in pregnancy to a dietitian/

nutritionist for counselling so as to improve pregnancy outcome.

WOMEN WITH DIABETES

Diabetes is characterised by high blood glucose concentration as a result of defects in insulin secretion. Some women may develop diabetes during pregnancy and this is called gestational diabetes. It usually occurs after 20 weeks of gestation.

Women who are overweight, have a first degree family history of diabetes and who have had a previous large baby weighing more than 4.0kg (9lbs) are at increased risk of developing gestational diabetes. Women with gestational diabetes are more likely to have:-

- Premature infants with severe complications.
- Infants with excessive birth weight. This can cause delivery to be very difficult and dangerous and thus mothers are likely to have a caesarean section delivery.
- More infections during pregnancy.

Women with gestational diabetes must be under medical supervision and also counselled by nutritionist/dietitian who will assist them in choosing an adequate diet based on a variety of foods from the six food groups and provide guidance on how often and how much to eat to achieve a healthy weight gain. Wholegrain crackers, cereals and bread, fruits, vegetables are healthy foods that should be included in the diet to increase

fibre intake. Wholegrain foods are slowly digested and help one to feel fuller between meals and assist in normalizing blood glucose levels. Moderate physical activity such as walking and swimming are recommended to help keep blood glucose under control.

WOMEN WITH ANAEMIA

The most common type of anaemia experienced during pregnancy is iron deficiency anaemia. Iron is required for the production of haemoglobin which is the protein component of red blood cells that transports oxygen to body tissues. Iron is in great demand due to the increase in the maternal blood supply during pregnancy and foetal needs. The developing foetus accumulates most of the iron during the last trimester of pregnancy to last through the first three to six months of life. Premature infants are at increased risk of iron deficiency anaemia because of the shortened gestation.

Symptoms of anaemia include tiredness, dizziness, paleness in the lips, eyelids and fingernails, rapid heartbeat, shortness of breath, headache, irritability and trouble in concentrating.

Fortunately during pregnancy the body increases iron absorption from the gastrointestinal tract by as much as 50% compared to 10-20% in the non pregnant state. In view of the important role of iron and limited absorption from dietary sources, all pregnant women are advised to take iron supplements daily as a preventative strategy to

prevent against iron deficiency anaemia. All pregnant women should also include iron rich foods in their meals daily. These foods include liver, kidney, heart, lean meat, sardines, dried peas and beans, dark green leafy vegetables and molasses. Foods containing vitamin C such as fruit juice and fruits such as cherries, oranges and tangerines eaten along with food sources of iron enhance the absorption of iron. Tea and coffee taken at meal time lower the absorption of iron from other foods in the meal.

Diet-related Concerns During Pregnancy

HEARTBURN

Heartburn is commonly experienced in pregnancy and can cause severe discomfort. It is usually caused by the reflux of gastric contents into the oesophagus as a result of increased abdominal pressure from the enlarged uterus on the intestines and the stomach. Heartburn can be avoided or alleviated by:

- Avoiding spicy and fatty foods.
- Eating small meals often instead of large ones.
- Chewing foods slowly and properly.
- Being relaxed at mealtimes.
- Limiting food intake before bedtime.
- Avoiding lying down at least one to two hours after a meal.
- Milk and yoghurt which also assist in alleviating symptoms in some people.

NAUSEA AND VOMITING

Nausea and vomiting usually occur in the first trimester of pregnancy. This is also known as ©morning sickness© and may be due to the hormonal changes taking place early in pregnancy. It can be

alleviated by:

- Consuming some bread, water or cream crackers or dry cereal before getting out of bed in the morning.
- Eating small frequent meals instead of large meals.
- Drinking fizzy beverages when feeling nauseated.
- Having beverages or food containing ginger to relieve nausea.
- Avoiding meals that are greasy and spicy.
- Keeping rooms well ventilated and odour free.
- Having adequate rest and getting as much fresh air as possible.

CONSTIPATION

Constipation may develop during pregnancy as a result of decreased physical activity, hormonal changes which affect the action of intestinal muscles and by increased pressure of the expanding uterus on the intestines. The iron supplements taken during pregnancy may also contribute to constipation.

Constipation can be prevented or alleviated by:

- Drinking plenty of fluids and eating high fibre foods such as wholegrain bread, high fibre cereals, prunes, fresh and dried fruits and vegetables. A combination of high fibre and plenty of fluids works best to eliminate waste.
- Taking light types of exercise such as a short relaxing walk after a meal may be beneficial.
- Taking smaller doses of iron supplements throughout the day rather than taking all at once.

The use of laxatives is not recommended for the treatment of constipation during pregnancy because it may cause uterine contractions and dehydration.

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