

MEAL PLANNING AND DIFFERENT DIETARY NEEDS

Meal planning is the scientific selection and organization of dishes before they are served to the people considering a number of factors.

Factors to consider when planning meals

- The needs of individual members of the family. Every person has varying requirements in terms of nutrient provision for example active working individuals require more energy foods than inactive individuals.
- The nutritional aspect Some food from each of the three food groups such as proteins, carbohydrates, vitamins, fats and mineral salts should be selected.
- The occasion for which the meal is required e.g. special occasions or family meal
- The number of people being catered for to avoid shortage or leftovers. For example a large family will have to prepare large amounts of food.
- The amount of money available
- The time available for preparation and cooking
- Equipment available e.g. the type of cooker or fuel
- Capabilities of the cook
- Individual tastes and reasons. If a disliked food is chosen, it will retard the flow of digestive juices and impair digestion. Favourite foods should not be served frequently to avoid becoming monotonous.
- Season of the year, using foods which are cheap and best e.g. use of home based produce and use the foods that are available in the season.
- Dietary restrictions to individuals should be considered for example diabetic diets restrict use of sugar.

Common terms used

1. **Menu**; it is the appropriate combination or list of dishes prepared or served for a particular meal.
2. **Diet**: this refers to the foods eaten by an individual everyday.
3. **Balanced diet**; this refers to a meal containing all nutrients or food values in their right proportions according to one's needs.
4. **A meal**; is a collection of different dishes that are meant to be eaten at a particular time.

TYPES OF MEALS

The variations in the different types of meals depend on any of the following:

- Religion
- Time
- Appetite
- Money
- Health condition of the society
- Heaviness of a meal

Breakfast

This is correctly called the morning meal taken after a period of long fasting during the night or when asleep. It starts with:

- Fruit/fruit drink e.g. ripe bananas, pawpaw, mango, orange juice, mixed fruit juice, passion fruit
- Cereal e.g. maize/millet/rice porridge, corn flakes, roasted cereals
- Proteins e.g. boiled egg, toasted bread, bread and butter
- Drink e.g. tea, coffee or cocoa with milk

Brunch

Refers to a late heavy breakfast or an early lunch prepared quickly, and often replacing lunch altogether.

Lunch

This is the large mid-day meal. It can be in three courses i.e.

a) First/Appetizer/Starter Course

This mainly contains soup and bread rolls, boiled potatoes, mayonnaise sauce.

b) Second/Main meal Course

It usually contains a good protein source, carbohydrate and vegetable for example beef stew, roasted potatoes, steamed vegetables.

c) Third/Last Course/Dessert

This is a sweet dish served at the end of the meal to seal off the meal. It can include lemon pudding, rice pudding, mixed fruit salad, butter pudding.

A course refers to how a meal is divided or patterned. A meal will contain atleast one of the above as follows;

- 3 course meal;** it is a meal that is made up of 3 courses i.e the first course, second and third course.
- 2 course meal;** it is a meal which is made of either a first course with a second course or a second course with a 3rd course.
- 1 course meal.** This is meal that is made up of only second course. i.e it contains a protein food, carbohydrate food, leafy vegetable and a drink.

Tea; This is truly an afternoon snack served between the mid-day and evening meal. It may vary e.g. a cup of a hot beverage only or accompanied with 1, 2 or many eatables.

EVENING MEALS

High tea

This refers to an early supper with hot tea as a beverage, eatables and a cake or other desserts.

Dinner

The evening meal is called dinner if it is the heaviest meal of the day i.e. larger than the mi-day meal (lunch)

Supper

This is the evening meal that is smaller or lighter than the mid-day meal.

Snack

This precisely refers to a light meal taken at any time of the day.

SPECIAL MEALS/ DIETARY NEEDS OF DIFFERENT GROUPS OF PEOPLE

1) BABIES

BREAST FEEDING

Breast feeding is the natural and best way of feeding a baby. The mother is referred to as a lactating and nursing mother. She needs to feed properly and rest adequately. Food eaten should be nutritious and balanced e.g. a lot of milk, drinks like porridge made from millet flour is necessary.

When breast feeding the baby, the mother should ensure that the nipples of breasts are cleaned with a cloth from clean warm water.

Advantages of breastfeeding

It is advisable for the mother to breast feed her baby for as long as possible for the following reasons:

- Breast milk contains nearly all the nutrients required by the baby in the right proportion.
- The yellow substance called colostrums which forms the first milk is very useful to the baby's digestive system. It also contains some antibodies which provide natural immunity to most diseases and allergies that might attack the baby.
- It is convenient as it does not require preparation before time.
- It is always at the right temperature for the baby.
- Breast fed babies are unlikely to be overweight.
- It is sterile and hygienic and therefore, gastro enteritis (common food poisoning) is less common than among bottle fed babies.
- Breast feeding mothers regain their body shape/figure faster than mothers who feed their babies artificially.
- Breast feeding incurs no additional cost while bottle feeding is costly.
- Breast feeding strengthens the bond of love between the mother and the baby.
- Breast feeding mothers lose weight during lactation due to the energy demands of milk production. In this way the store of fats laid down in pregnancy is used up hence reducing the possibility of obesity.

ARTIFICIAL FEEDING (BOTTLE FEEDING)

Bottle feeding are moments when it may not be possible for the mother to breast feed her baby.

Reasons

- When the mother cannot produce enough breast milk for her baby, so she has to supplement with other milk.
- It may not be possible for working mothers to breast feed regularly because of the nature of work and distance.
- When the mother is sick, dead or when the nipples have sores or wounds.

The mother may use cow, goat, or camel milk depending on what is available locally and affordable. The milk must be diluted properly in order to avoid upsetting the baby's digestive system.

Disadvantages of bottle feeding

- It can be very expensive especially if the milk has to be bought.
- The feeding equipment takes time to clean.
- It is easier to pick infection either through careless preparation of the feed or dirty feeding bottles and equipment.
- The milk takes time to prepare and it is therefore not convenient.
- Some babies take time to adjust to the new feed.
- The proportions of nutrients in the milk are not in the right proportions as the mother's milk.
- It requires special attention to maintain the correct temperature of the milk. In artificial feeding, the instructions on the tin or packet of the milk being used must be carefully followed.

Types of milk

- a) Full cream
- b) Half cream

Half cream is good for small babies especially after the first few weeks of birth. One should change to full cream as the baby grows bigger. For whatever type of milk is used a given instructions must be followed strictly.

Most tins contain a measure in size that can be used according to the instructions given. Many mothers for artificial feeding also commonly use fresh cow milk. When used it must be boiled and stored in a well covered container. If used in early stages it requires diluting to reduce the strength of the milk.

USING CUP/SPOON FOR FEEDING

It is safer to use cup/spoons for feeding than use of the bottles, because it is much easier to clean the cup and spoon than the bottle especially the teats.

- Wash them thoroughly with hot soapy water.
- Rinse well with hot water until all traces of soap are removed.
- Leave on a very clean rack where the water can drain off.
- Store in a clean covered container/refrigerator if available

SUPPLEMENTARY FEEDING (WEANING)

This is giving the baby other foods a part from the breast milk or it refers to the gradual introduction of solid food to a breast fed baby. It is normally introduced when the baby is between four to six months (4 to 6). This is important because as the babies grow they would require additional nutrients especially those not abundant or lacking in cows/mother's milk e.g. vitamin C, and iron.

Suitable foods

- Soups e.g. from strained liver, vegetables.
- Enriched porridge.
- Mashed ripe bananas, pawpaw etc.
- Mashed matooke, potatoes enriched with milk and egg.
- Steamed fish (white fish) etc.

Points to remember when introducing new foods

- Introduce one food at a time and allow the baby to be familiar with it before trying to give another.
- Use thin consistency when starting solid foods, gradually making more solid as the baby learns to use the tongue.
- Never force a baby to eat more of a food he/she takes willingly.
- After trying several times, if it is clear that the baby has a strong dislike for a particular food, it is advisable to stop for a while e.g. a week or two then try again, but if the dislike continues, forget that the food for some time.
- Vary the food chosen for the baby.
- Egg white cannot be digested by babies under 7-8 months and should not be included in the diet before that period.
- Use food of smooth consistency at first e.g. fruit juice (sieved) when the baby is able to chew gradually introduce chopped or minced fruit, vegetables and meat.
- Avoid refined sugar.
- Avoid squashes (sodas, quenchers).

- When the baby begins teething, foods for biting should be given for example carrots, apples, etc.

PREGNANT/ EXPECTANT AND LACTATING MOTHERS

A pregnant or expectant woman is one who has a growing foetus within her womb.

The pregnant and lactating mother requires a slight increase of intake of certain nutrients as she is feeding herself and the baby.

Dietary requirements

1) **Proteins:**

The protein needs will be largely met by giving milk, however both animal and plant proteins should be increased for growth of the foetus and repair the worn out tissues for the mother.

2) **Energy:**

Pregnancy leads to increased metabolic rate which will increase up to 20% at full term. Appetite may increase to meet this demand, but it is important that a pregnant mother does not put on too much weight. A weight gain of about 10kgs is acceptable and normal. An extra weight gained may be difficult to loss at the end of it. Breast feeding mothers should maintain the same diet as in pregnancy but with a slight increase in protein, vitamins and mineral salts.

3) **Calcium and phosphorus:**

The extra needs for calcium and phosphorus to meet the bones and teeth of the foetus are best met by increasing the milk intake to at least half liter per day. It should be increased in the latter months of pregnancy. If milk is not available, liberal amounts of vegetables rich in calcim should be given and if necessary calcium lactates be given orally. Calcium and phosphorus should be supplied in conjunction with vitamin D which facilitates their absorption and utilization.

4) **Iron:**

This is important to avoid anaemia which is very common in pregnant women because of increased demands for iron by mother and foetus as the blood cells form. The supply of iron food should be sufficient to allow for storage of iron in the baby's body for six months.

5) **Vitamins:**

Vitamins of B group are required for the release of energy. Vitamin C is required for general health and in particular for the absorption of iron. Vitamin D for absorption and utilization of calcium.

Summary of the guidelines

- Provide foods rich in essential fatty acids for brain growth and cell division of the foetus
- Provide vitamin D to prevent lowbirth weight, tetany in the baby and osteomalacia in the mother.
- Provide foods rich in folate for good development of the brain and nervous system in the foetus. It prevents miscarriage, slow growth and malformation in the foetus.
- Vegetarian mothers should be given vitamin B₁₂ supplements to prevents its deficiency.
- Provide a lot of calcium for development of the skeleton of the foetus and also to replace the lost calcium from the mothers bones.
- Provide foods rich in iron to prevent nutritional anaemia.

What an expectant mother should avoid;

- ✓ Smoking
- ✓ Alcohol

- ✓ Bulky foods which will lead to constipation
- ✓ Should be active
- ✓ Should avoid foods which slow down her digestion
- ✓ Should avoid highly seasoned or spiced foods.

Suitable foods

Boiled eggs, lightly buttered bread, boiled milk, juice (fruit), lean meat, fish, irish potatoes, matooke, rice, macaroni, chapatti, green vegetables.

Example of a three course meal for an expectant or pregnant woman

First course

Soup – Tomato soup

Second course

Protein –Fish stew Reasons for choice

- *To provide proteins that help in the growth of the foetus and maintenance of wornout tissues of the mothers*
- *It is rich in vitamin D that helps in absorption of calcium and phosphorus for strong bones of the mother and formation of the bones of the foetus*

Carbohydrate- Boiled vegetable Rice

Vegetable – Sauted Dodo

Drink- Mixed Fruit Drink

Third course

Dessert -Fruit salad

SMALL CHILDREN/PRE-SCHOOL CHILDREN/TODDLERS (1 to 5 years)

Meals for children are important;

- For building strong healthy bodies.
- Part of their education i.e. teaching them to enjoy well balanced meals.
- To help them acquire good food habits and table manners e.g. the meals should be enjoyable, the children should be calm and happy.
- Food should taste good, look attractive and should be easy for the child to eat.

Guidelines for serving meals for children (toddlers)

- Use bright colours of tomatoes, carrots, well cooked green vegetables and brightly coloured fruits.
- It should be served in fancy individual shapes, moulds, and free from skins, bones, gristles, and surplus fats.
- The helping should be small enough for the child to eat willingly because children have small appetites, but the small helping should be balanced. Children should be encouraged gradually to feed themselves.
- Food should not be over sweetened or over flavoured, children enjoy natural flavours of food.
- Have plenty of fresh air and exercise to build appetite.
- Children should be trained to observe good habits such as washing hands before eating, using good table manners and praying before eating.
- Meals should be served punctually, making them wait for food makes them lose appetite and bored.
- All food eaten should be concentrated sources of nutrients e.g. body building materials.

- Foods should require plenty of chewing in order to form strong teeth, well shaped jaw bones etc.
- Avoid snacks in between meals; give milk or fresh fruit instead because they take a child's appetite for a balanced diet.
- The atmosphere at meal times should be relaxed and enjoyable. It is better most times to ignore a child's refusal to eat instead of a fuss.
- Adults should set a good example by eating all foods. They should not show their dislike of a food in front of children.

Qn. How can you make meals of a toddler attractive

Suitable foods include:

- Plenty of animal proteins e.g. meat, fish, eggs as they grow rapidly.
- Milk should be taken rather than tea, coffee etc.
- Give bread and butter, soya, and millet. Potatoes to supply energy.
- Milk foods and cheese supply, calcium for bone and teeth formation.
- Give vegetables, raw fruits daily to supply minerals, vitamin A, C and roughage.

Food to avoid

- Highly seasoned foods
- Fried foods as they become indigestible
- Tea or coffee
- Salty foods
- Very sweet foods
- Foods with bones

SCHOOL CHILDREN (6-12) YEARS

School children grow fast, they are active and they expend a lot of energy. Their food requirements are higher than those of adults.

- Ensure a balanced diet at all times.
- Discourage them from eating snacks and drinking fizzy sweet drinks in between meals.
- They require plenty of body building and protective foods.
- Too many bulky carbohydrate foods like yams, cassava, potatoes make them over weight.
- Ensure that there are fats in the diet as they are a concentrated source of energy and less bulky than carbohydrates.
- Breakfast is a very important meal, should never be skipped even when time is limited. Remember the blood glucose level is low if breakfast is neglected and hence the work of the nervous system is reduced.

ADOLESCENTS (13-19 YEARS)

These are undergoing physical changes at puberty. Puberty is a period or stage where one is capable of sexual reproduction. Adolescence is a period of rapid growth and development, great activity and big appetite.

Guidelines for their meals

- Proteins for growth, repair and for hormone and enzyme synthesis.
- The meal should be balanced as usual but larger quantities are required due to great appetite and physical activities e.g. high calorie content may be eaten.
- Liver, kidney, green vegetables are good sources of iron, which is required by both boys and girls but girls require it more because of menstruation.

- Too many fried foods, pastry and rich foods should be avoided as they lead to obesity and may increase teenage acne.
How to avoid acne;
 - ✓ Exercising regularly
 - ✓ Eat less fat and carbohydrate foods
 - ✓ Take a lot of water and fluids
 - ✓ Eat a variety of fruits and vegetables
- Boys require larger amount of all foods as they are growing very quickly at this time.
- Adolescents also get pimples at this time therefore; they need plenty of fruits and vegetables, water to clear the skin.
- Girls get slimming disease known as Anorexia Nervosa i.e. a loss of the general desire to eat leading to gross weight loss therefore, girls should be discouraged from this habit as it may lead to nutritional disorders.
- Vitamin C is needed for absorption of iron, formation of intercellular cement and connective tissue.

Example of a three course meal for an adolescent

First course course

Soup -Tomato soup

Second course course

Protein –Beef stew; *reasons for choice*

- *Rich in proteins for growth and maintainance of the wornout tissues of the adolescent*
- *Rich in thiamine that helps in production energy for the boy or girl*

Carbohydrate-Steamed matooke

Vegetable- Sauted Bugga

Drink – Mixed Fruit juice

Third course

Dessert – Fruit salad

ADULTS (SEDENTARY AND MANUAL WORKERS)

A normal balanced diet is necessary for adults but their work, activity and health status greatly affect their dietary needs.

a) Sedentary workers

These are workers who live less active life and therefore expend less energy e.g. secretaries/office Clarks, teachers, doctors, etc.

- Food with a high percentage of roughages/dietary fibre are necessary to prevent constipation
- Bulky foods should be avoided to avoid obesity
- Salads, cheese and yoghurt are better than fried foods.
- Fresh fruits should be eaten in between meals rather than cakes, biscuits, doughnuts etc.
- Plenty of fresh air and exercises are necessary to keep the sedentary worker healthy.

b) Manual workers

They live a very active life and use a lot of energy for example brock maker, wheel barrow pushers, builders, laundry men, farmers e.t.c

They can eat high kilocalorie (energy giving) foods without putting on weight.

- High energy foods such as fatty meat, oily fish, fried foods, starchy foods are very good in the diet of a manual worker.
- Foods generally should be balanced, should contain proteins, fats, carbohydrates etc.
- Diet should be rich in proteins to repair worn out tissues.
- Packed meals should contain proteins, carbohydrates and some fats such oily fish or fried foods
- Extra vitamin B group is required to assist in the digestion and metabolism of carbohydrates.
- More fluids and salt is needed as they lose a lot of water and salt in form of sweat.

ELDERLY AND OLD

Elderly persons are about 60 years, whereas the old are from about 75 years of age.

Some of the changes that occurs when people get old

1. Social

- Decrease in income
- Staying alone
- Dependant

2. Physical changes

- Changes in digestive system i.e. as the teeth are not efficient.
- Metabolism is not the same.
- Cholesterol may be higher, thus fatty foods have to be avoided.
- Glucose level may fluctuate thus sweet foods which may cause the level to increase suddenly should be avoided.

Nutritional requirements

- Energy foods should be reduced.
- Body building and protective foods should be increased. Examples of suitable foods include;
 - i) Fish e.g. white if they have digestive problems.
 - ii) Eggs but they should not be too many to raise the cholesterol level.
 - iii) Meat or cheese at least five times in a week.
 - iv) Vegetable to provide vitamin C and iron.
 - v) Raw fruits daily to supply vitamins.
 - vi) Brown bread and rice daily as a source of energy, vitamin E and cellulose.
 - vii) Milk to supply calcium and protein.

Points to consider when planning their meals

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- Avoid foods which may prevent digestion e.g. fried foods. The foods should be easy to chew forexample steamed or mashed food.
 - Decrease salt intake to avoid high blood pressure.
 - Foods served should be attractive to stimulate appetite.
 - Fruits and vegetables should be provided in the diet to supply vitamins, mineral salts for protection against diseases and to avoid constipation.
 - Serve heavy meals at lunch time but not in the evening as they may suffer from lack of sleep.
 - Because of digestive problems, difficulty in chewing due to loss of teeth and other problems steamed, stewed, braised and poached foods are most suitable.
 - Provide iron to prevent anaemia.

Causes of malnutrition in elder or aged people

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- Have no interest in food due to illness and loss of beloved ones.

- Poor food choice due to ignorance
- Lack of food due to poverty
- Have difficulty in purchasing and preparing food because of disability and poor eye sight.

INVALIDS AND CONVALESCENTS MEALS

An invalid is a person who is sick or ill.

A convalescent is a person who is recovering from an illness.

During illness and convalescence it is important that food should make good the damage which the body has suffered and should also protect the body from further infection.

Suitable dishes

Fruit juice, strained soup e.g. from vegetables or liver, poached eggs, steamed fish, green vegetables to prevent constipation.

Dishes to avoid

During illness, digestion is impaired, indigestible foods such as pastry, oil fish, fatty meat, fried foods, cheese and highly seasoned foods should be avoided.

Important rules when planning invalid's meals

- Meals must be balanced and must contain plenty of body building and protective foods i.e. include protein foods and serve a variety of fruits and vegetables.
- Follow the doctor's orders/instructions
- Observe strict hygiene in preparation, cooking and serving e.g. cover the food to prevent flies and other insects feeding on it.
- Serve foods punctually and easy to manage, and also regularly.
- Use best quality fresh foods e.g. fruits.
- Serve food attractively i.e. different shapes of food, different shapes of plates etc. to stimulate their appetite.
- Avoid fatty and greasy foods.
- Give plenty of fluids in form of fruit juice to prevent dehydration.
- Avoid seasoning and flavouring.
- Use easily digestible methods of cooking for example steaming and boiling.
- Choose foods suitable for the illness i.e. easily digestible foods.
- No left over foods to avoid possibility of other infections.
- Remove all food from the sick room when the meal is finished, because the unpleasant scraps may attract flies.

DIET DURING FEVER

During fever, the temperature is high and so much water is lost from the body, therefore:

- The diet should include plenty of liquid foods with little solid foods.
- Proteins in form of meat soup/broth, milk drinks and eggs (egg flips).
- Some energy foods so that the body does not get so weak in form of breakfast cereals, sugar, glucose, etc.
- Fat can be got from milk, eggs and meat eaten, eliminate fried foods.
- Vitamins from fruits taken.

After fever

- Light diet can be followed.
- All foods should be lightly cooked and easy to digest.
- Plenty of liquid should still be taken.

Dishes

- Eggs poached or scrambled
- Chicken breast
- White fish steamed/poached
- Milk pudding and milk drinks
- Raw fruits
- Vitamin C drinks

DIET DURING CONVALESCENCE

The patient should be able to eat small portions of most foods except fried foods. The energy intake should still be low.

Dishes

- Eggs- slightly boiled or poached
- Meat- lean, minced, stewed, chicken or liver.
- Milk and milk dishes
- Bread lightly buttered
- Fruits
- Vegetables e.g. carrots, boiled or creamed potatoes.
- Drinks- plenty of drinks.

WEIGHT/SLIMMING DIET

The aim of a slimming diet is to reduce energy intake to less than that the body requires. The excess weight is caused by fats and carbohydrates eaten in surplus thus remain in the body as fat. When less energy foods are eaten, the body then begins to use what has been stored.

Points to remember when planning slimming diets

- It is advisable to consult a doctor before beginning a strict weight reducing diet.
- Reduce energy intake i.e. carbohydrate foods especially sugar, cakes, biscuits etc.
- Eat more fruits and vegetables which are poor in energy.
- Eat more protein foods e.g. cheese, skimmed milk, eggs etc.
- Eat smaller meals more frequently but do not over eat.
- Have no snacks in between meals, but if you must, take water or eat fruits.
- Have a good breakfast and heavy meals during the day.
- Have regular exercises to increase energy output.
- All diets must be well balanced.
- Provide a lot of vitamin C to reduce on cholesterol levels.
- Use steaming or boiling methods to prepare their foods because these are fat free.

Foods that can be eaten in plenty

- ✓ Skimmed milk
- ✓ Lean meat
- ✓ Cottage cheese
- ✓ White fish
- ✓ Liver
- ✓ Mushroom, green vegetables (not fried)
- ✓ Lettuce and salad vegetables

Foods to be restricted

- ✓ Starchy foods
- ✓ Fatty foods
- ✓ Fruits especially grapes and bananas

- ✓ Breakfast cereals
- ✓ Rice pasta
- ✓ Butter/margarine with bread

Foods to avoid completely

- Deep fried foods, coated foods with flour, eggs or bread crumbs.
- Thickened soups with flour.
- Convenience foods especially jam.
- Biscuits, sweets, chocolate, cakes, pastries etc.
- Wine, beer, spirits (alcohol has high energy content).
- Mayonnaise.

OVERWEIGHT MAY COME AS A RESULT OF: (CAUSES OF OBESITY)

- Family food habits i.e. food preparation habits and food selection habits.
- Poverty i.e. eating cheap starchy foods.
- Over indulgence in sweet things like cakes, biscuits, sweets etc.
- Active entertainment i.e. rich meals, drinking and eating.
- Leisure activities that have no physical exercises.
- Pregnancy.
- Changes in living patterns for girls at the end of adolescence when maybe they have been active then stop
- Occupation if sedentary.
- Childhood obesity i.e. if the person is fat from childhood, it may cause problems later as adipose tissues are already blown up thus take up energy very easily as they are ready.
- Heredity (debatable as obesity may not be inherited).
- Over eating or eating too much starch

NUTRITIONAL ANAEMIA/IRON DEFICIENCY ANAEMIA

Nutritional anaemia unlike other types of anaemia is caused by lack of either iron due to inadequate intake of iron or failure of the body to absorb iron present in the food due to lack of vitamin C or loss of iron in the body through bleeding or severe infestation with some worms or malaria parasites.

Red blood cells are manufactured by bone marrows. Proteins, iron, and vitamin B₁₂ are necessary for the manufacture of red blood cells.

Definition:

Iron deficiency anaemia/nutritional anaemia occurs when there is reduction of the total number of red blood cells or low levels of haemoglobin in the red blood cells.

CAUSES

- Low consumption of iron in the diet or protein foods which is necessary in building haemoglobin.
- Lack of vitamin C in the diet, responsible for the absorption of iron.
- Infestation from parasites e.g. malaria, worms, etc.
- Frequent or heavy blood loss e.g. in accidents, women with heavy periods.
- Increased requirements during pregnancy, rapid growth as in childhood and adolescence.

Management of iron deficiency anaemia/nutritional anaemia

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- ✓ An anaemic person should be taken to hospital to find out the main cause of anaemia.
 - ✓ If iron deficiency, give a diet rich in iron e.g. liver. Kidney, eggs, etc.

- ✓ In addition give foods rich in vitamin C to allow the conversion of iron III to iron to iron II in an easily digestible form.

ULCERS

An ulcer is a raw area in the lining of the digestive tract, usually the stomach or duodenum. They are caused by action of pepsin on an inflamed section of the stomach and result in discomfort and pain.

Causes

- Stress
- Over work, sometimes no time to eat
- Skipping meals

Treatment of ulcers

- Take life easy and have plenty of rest.
- Take regular meals.

Diet (foods that cure ulcers):

- ✓ Boiled milk
- ✓ Cheese
- ✓ Cream
- ✓ Ripe bananas
- ✓ Boiled eggs

Foods to avoid

- ✓ Highly seasoned foods
- ✓ Avoid alcohol and smoking
- ✓ Coffee
- ✓ Greasy foods
- ✓ Carbonated drinks

VEGETARIAN MEALS

Vegetarianism is the practice of living on vegetable foods. Animal flesh, fowl and fish are not eaten.

Types of vegetarianism

There are two types of vegetarians:

i) Lacto vegetarian:

These are people who eat animal products like milk, cheese, eggs but not animal flesh or fish. It is therefore, easy to supply the essential amino acids.

ii) Vegan or strict vegetarian:

A vegan eats no animal flesh or product i.e. he/she does not eat all animal foods. The diet is limited in choice, bulky and monotonous.

- Protein sources are: pulses, peas, lentils, soya, and ground nuts.
- Fat: vegetable oils and fats especially nuts only.
- Vitamin A: carotene from vegetables in orange-red, dark green vegetables and fruits.
- Vitamin D- only found in margarine and sunshine
- Vitamin C- fruits and vegetables
- Vitamin B- vegetables, dried fruits, cereals, yeast and yeast extract.
- Minerals – as for vitamins

Menu for vegetarian

Breakfast - Fruit drink
- Millet + soya porridge

- Toasted bread + margarine
- Tea + soya milk

Lunch

First course ; Tomato soup + bread roll with butter

Second course; Steamed matooke/yams/cassava
Ground nut + simsim sauce
Stir-fried cabbage/nakati/spinach
Fruit drink

Third course; Steamed pudding + custard/cherries

Reasons for vegetarianism

- i) Religious belief e.g. Hinduism
- ii) Allergy
- iii) Health reasons i.e. belief that vegetables are good for health
- iv) Economic reasons/poverty where prices for animal protein food is too high.
- v) Ethical reasons i.e. feelings that killing animals is wrong
- vi) Family i.e. child born by vegetarians
- vii) Ecology

Guidelines to planning vegetarian meals

- i) Consider the type of vegetarian being catered for.
- ii) Vary the texture of the food especially the protein foods, this can be done with eggs and bread crumbs, baking or frying etc.
- iii) Vary the flavor e.g. onions, herbs, yeast, vegetable extracts, celery, spices e.g. garlic etc.
- iv) Any vegetable soup may be used but animal stock and meat-based stock cube should be avoided.
- v) Basic knowledge of nutrition is necessary to ensure that it is well balanced.
- vi) Use vegetable fats.
- vii) Pasta dishes and cereal dishes based on wheat, maize, barley, rice, and millet are necessary and nourishing.
- viii) Nuts are good source of protein and fat. They may be sprinkled over dishes such as salads and used as the major ingredients of a dish.
- ix) Whole cereals or ground whole cereals are preferable to processed or milled cereals, because of the vitamin B they provide.
- x) Cheese, milk and eggs if taken, should be included often as they are well balanced and nutritious foods.
- xi) Pulse vegetables should be included for their high protein content e.g. peas, beans, haricot beans
- xii) Use soya flour for thickening as it has a high nutritive value.

Some suitable dishes for vegetarians

- ✓ Lacto vegetarian: cheese and onion pastries, cheese croquettes, cheese pudding, macaroni cheese, omelettes, cauliflower cheese, curried eggs, stuffed marrow etc.

- ✓ Vegetarian: salads, vegetable soup, fried rice, nut cutlets, spaghetti, Bolognese, stuffed vegetables, etc.

HIGH FIBRE DIET

This is a diet containing large amounts of cellulose or roughage. Most modern foods are highly refined and refining removes the outer husk which contains large amounts of cellulose and vitamin B₁.

This causes the diseases of the colon such as:

- Constipation: This is associated with infrequent defecation, small stools and a hard stool consistency.
- Haemorrhoids (piles): is a condition in which there is a downward prolapsed and swelling of the cushions of blood vessels found in the upper end of the anal canal. It can be painful and bleed, depending on how severe they are.
- Cancer of the colon

NB: These diseases are most common in developed countries. Diets containing large amounts of roughage prevent one from suffering from the disease above.

Diet

Eat plenty of whole meal bread, porridge, foods containing fruits, nuts, vegetables, oatmeal, brown rice, wheat germ.

Foods to avoid

White rice, white bread, white sugar, convenience foods, etc

NB: It is important that bowel should be emptied regularly, failure to do so causes the faeces to harden so that they become difficult to pass resulting haemorrhoids, and constipation.

GLUTEN FREE DIET

Gluten is a protein found in wheat flour. It is thought that if the body lacks the enzyme that breaks down the gluten, the gluten molecules will be absorbed without being fully broken down. This damages the sensitive lining of the small intestine and much of the foods eaten is thus passed through the body unabsorbed resulting in loss of weight and failure to benefit from nutrients required by the body.

Gluten free diets are used in the treatment of patients with gluten sensitivity most usually in the form of coeliac disease and a skin condition called dermatitis herpatifomis.

Coeliac disease occurs most frequently in early childhood and is also being diagnosed quite frequently in adults. It mainly starts at the time when the child is weaned on to wheat containing foods.

Foods to avoid

Bread, biscuits, cakes, many convenience foods based on wheat flour, fish coated in butter, or bread crumbs, e.g. fish fingers, soups, sauces, and gravies made with wheat flour, meat products containing cereals e.g. samosas, meat pies etc.

Diet requirements

- Special gluten free flour is available.
- Eat other cereals e.g. maize, soya etc.
- Protein foods should be given in good amounts to ensure good protein intake.
- All baked foods must be made from special gluten free flour.
- All wheat, rye, oats, barley must be excluded along with foods made from or containing them.

GASTROENTERITIS DIET

Gastroenteritis is a general name given to the various forms of food poisoning and infections of the gastro-intestinal tract.

The symptoms include nausea, vomiting, abdominal cramps, diarrhea, headache, fever.

Diet requirements

- Take fluids only 12 to 14 hours e.g. glucose drinks, water, skimmed milk, carbonated drinks.
- Gradually include digestible foods e.g. poached eggs, milk puddings, steamed white fish, mashed potatoes.
- Drinks with salty water (ORS) can be added if there is diarrhea.

LOW SALT DIET

Salt is made up of 2 elements sodium and chlorine (NaCl). In a low salt diet it's the sodium to be restricted. All foods contain some sodium as its found in extra-cellular fluids. Under normal circumstances, any excess sodium is excreted by the kidneys in the urine.

The sodium content of foods or in the diet is expressed in milligrams or millimoles:

1g of salt (NaCl) contains 1.7 millimoles of Na

A low salt diet is used in the management of high blood pressure, oedema and maintenance osmotic pressure of body fluids.

Dietary requirements

- The diet should use very little salt in cooking.
- No salt should be added in cooked food at table.
- Salty foods should be avoided e.g. bacon, salty biscuits, packet soup, tinned meat and fish, salted butter, salted bread.
- The salt can be put out of the diet completely.

A low salt diet is unpalatable, unappetizing, unimaginative, monotonous and low in energy.

GASTRIC DIET

These are used in the treatment of gastric (stomach) and duodenal ulcers. The aim of the diet is to relieve pain, assist in healing ulcers and maintain good nutrition.

Ulcers are raw areas in the lining of the digestive tract usually the stomach or duodenum. They develop due to the action of pepsin on an inflammable section of the gut resulting into pain, discomfort and wounds.

Ulcers can be caused by stress, over working, erratic diets e.g. skipping of meals. The patient has to learn to deal with stress, avoid worry and also eat at regular intervals.

The symptoms include sharp pain in the abdomen leading to abdominal cramps.

General rules

- Take small frequent meals every 2 to 3 hours so that the gut never becomes empty.
- Eat under relaxed conditions and chew food thoroughly.
- Milk and milky foods help to neutralize the gastric acid and should be taken in fairly large amounts especially if a meal has to be missed.
- Avoid foods known to cause discomfort. These include; citrus fruits, hot spices, pickles, vinegar, fatty and fried foods e.g. cheese, pastries, suet.
- Avoid alcohol and smoking.
- Increase intake of foods rich in vitamin C and Zinc to assist in the healing of the inflamed areas (wounds).

Recommended foods include;

- Tender lean meat (chicken, minced non-fatty beef)
 - White fish (baked, steamed, grilled)
 - Eggs (poached, boiled, scrambled)
 - Cheese (cottage, mild, creamed cheese)
 - Toasted bread, cream soups
 - Soft fresh fruits and vegetables
- Well cooked mashed or creamed potatoes

DIABETIC DIET

The diet and insulin play an important part in the treatment of all diabetics. The amount of carbohydrate foods eaten must balance the amount of insulin in the body. When a patient has to take insulin injections, it is very important that he eats regular meals.

If a meal is missed the patient begins to feel like fainting and dizzy. At a time like this, the patient must take a little sugar or glucose to help him recover. Too much would cause excretion of glucose in urine which can lead to body dehydration.

Requirements

- Low carbohydrate foods like matooke, fruits, irish potatoes are suitable.
- Sugar is completely cut out and replaced with saccharin.
- Reduce the intake of bread, cereals, biscuits, cakes, cookies.
- Include fibre in the diet. Fibre helps to keep blood glucose level at constant level and reduce on glucose and fat absorption.
- Fibre also helps to prevent constipation and reduce feeling of hunger by adding bulk to the diet.
- Use fruits such as water melon and apples for their salads because of less sugars in them

LOW CHOLESTEROL DIET

Cholesterol is a steroid (solid fat) found in animal tissue particularly the nervous tissue. It is present in food and it is also synthesized by the liver and occurs in the bile. Excess bile salts cause the accumulation of **gallstones** in the kidney.

Cholesterol helps to convey fats through the blood. When too much accumulates in the blood, it is deposited on the walls of the arteries especially the coronary arteries causing them to narrow. This is known **arteriosclerosis**. A small clot can easily block the narrow artery increasing the risk of a heart attack known as **coronary thrombosis**.

Polyunsaturated fatty acids are thought to reduce cholesterol in blood and heart attacks.

Sources of cholesterol in the diet include:

- Offal (liver, kidney)
- Egg yolk
- Shell fish (prawns, cockles, mussels)
- Milk and milk products (cheese, cream, butter)
- Fat in meat (lard, suet, dripping)

MACROBIOTIC DIET

This is the diet made up of healthy foods. These are natural foods mainly of vegetable origin grown organically (without use of artificial fertilizers or pesticides). The diet was common among ancient Japanese.

People living on this diet are said to be among the longest living and healthiest people in the world.

- Refined foods, preservatives and use of chemicals are avoided.
- Fruits and vegetables are used in season or dried naturally.
- Grains make the main foods e.g. whole wheat flour, oatmeal, barley, millet and unpolished rice.
- The diet is generally a vegetarian one although meat isn't forbidden.
- Sugar is rarely used, honey can be taken instead.
- The diet has a high content of fibre.

PACKED MEALS

This is a meal that is prepared to be eaten away from home e.g. when one is going to work, school or travelling on a long journey.

Points to remember when preparing packed meals

- i. It should be balanced including all the food groups in adequate amounts
- ii. They should be satisfying and not very bulky
- iii. Pack sufficient amounts so as to avoid too much waste or the trouble of carrying it back
- iv. It should be easy to carry in a food pack of any kind
- v. Dry foods are more favourable because they do not spill
- vi. They should be easy to eat, requiring minimum use of cutlery
- vii. Foods to be eaten first should be on top. It is better to pack in big pieces. Pack carefully to avoid distorting of the food shape.
- viii. Foods chosen should be able to keep well
- ix. A beverage should always be packed to accompany the dry foods
- x. The meal should suit both the personal taste and occasion
- xi. Consider the climate e.g. pack warm dishes like porridge during cold season and fresh fruit salads during hot seasons
- xii. Allow enough time for cooked food to cool before packing or else it will be spoilt
- xiii. Remember to pack small accompaniments to meals e.g. salt, seasonings etc

Examples of packed dishes

Protein – meat balls, fish fingers, deep fried chicken

Carbohydrate-baked Irish potatoes, chips (cassava, potatoes)

Drink – mixed fruit juice

Dessert – fruit salad, puddings

CONVENIENCE FOODS

Convenience foods are basically foods prepared by manufacturers ready to be eaten or prepared in a few minutes. They are usually sold in packets, cans or bottles.

Convenience foods are categorized into the following;

- **Dry ingredients;** These are usually partly prepared and are ready to mix and cook. They include self-raising wheat flour, maize flour, millet flour, pasta (macaroni, spaghetti, noodles), custard powder, instant soup and sauces, pounded g.nuts, mixtures for cakes, scones and pastry.
- **Dehydrated foods;** These are foods from which water has been removed during processing for preservation purposes. They can be quickly rehydrated with milk and cold or hot water. These include instant potato, instant porridge, instant coffee or tea, drinking chocolate or

cocoa, instant pudding, powdered or dried milk and dried soup (mushroom, onion chicken or oxtail).

- **Frozen foods;** Some of the frozen foods can be eaten as soon as they have thawed e.g. yoghurt, ice cream, pasteurized milk and others need to be cooked e.g. sausages, dressed chicken, fish fillets,
- **Canned foods;** these can be used without cooking e.g. tinned fruit, meat and fish, and some drinks. Others may need to be heated e.g. soup, vegetables and snack meals.
- **Ready to eat food;** These include biscuits, cakes, pastries, sweets, fresh cream, crisps, cooked meat, meat pies.

Why most people use convenience foods

These are the reasons why the choice and use of convenience foods is on the rise;

- Many house wives today go out to work and they do not have time to prepare foods which take a long time.
- Families rarely sit down to eat family meals together due to work demand, educational and economic activities. Most of the family members therefore eat packed meals or take-away.
- Cooks or family members who do not have variety of skills to prepare attractive meals can easily prepare quick meals using convenience foods.
- Food technology has also greatly developed. This has led to;
 - (i) Improvement in the quality colour, texture, flavour and nutrient content of convenience foods. Therefore, people are attracted to using them more often.
 - (ii) Increase in the range of products (variety) from one food item.
- Advertisement that promote the food products. This is mainly through the mass media (radio, T.V., newspapers and magazines), sales promotion programs and activities.

Advantages of convenience foods

- They are readily available in shops and supermarkets.
- There is a wide variety of food products from which to choose. This increases variety in the diet.
- They can be easily stored at home and prepared from a limited space.
- The preserved form of convenience food can be kept for a longer period without getting spoilt.
- Easy to prepare even for elderly and physically handicapped people. Some have instructions on the cover of how to use or prepare them.
- Labour, energy or fuel and time saving.
- A variety of flavour, texture, colour and nutrients can be added during the processing.
- They are light, easy to carry and require small storage place. They are therefore useful when packing food for travelling, picnic and camping.
- They can be used even when the important food preparation equipment like cookers, ovens are not available.
- The quality of convenience food is consistent

Disadvantages of convenience foods

- Nutritionally, some foods may have lost the nutrients during the processing or storage period
- They are usually expensive because of the processing and technology used during the production.

- Most cereal-based convenience foods are prepared from refined cereals and lack dietary fibre.
- Many of the ready to eat foods are rich in saturated or animal fat and refined sugar whose intake should be low due to their long term effects.
- Artificial colourings, flavouring and preservatives are used in production of convenience foods. These can lead to body disorders if they accumulate.

Points to consider when buying convenience foods

- Compare the prices by window shopping. Some shops may have lower prices for the same item.
- Check on the labels for the manufacture and expiry date to avoid intake of expired foods that may be harmful to health.
- Go in for food products with a long shelf life.
- The standard of hygiene must be high. This can be seen from the cleanliness of the place where you are buying.
- There must be good shopping conditions i.e. enough space within the shop for movement, proper display of food items on the shelves with labels and price tags, proper ventilation or air conditioning and lighting.
- Check on the freshness of the food products.
- Avoid dented, rusty and bulging tins.

Using convenience foods

- Always read the label to check on the contents or ingredients used and the instructions.
- Once you open and rehydrate the dried foods, use them quickly.
- Use the thawed frozen foods immediately. Thawed foods should not be refrozen because this encourages the growth of bacteria.
- Store any convenience food leftover in a clean covered container. Store in cool place and use within 48 hours.
- Store tins and bottles in a cool place.
- Tin openers must be sharp so that metal shavings do not get into the foods.

RECHAUFFLE COOKERY/ LEFT OVER FOODS/ RE-HEATED DISHES

Leftover food is food that remains or not eaten after a meal. Leftover foods can be used for other purpose.

The process of reheating a leftover food is called rechauffle cookery.

Guidelines or rules for preparing leftover foods

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- They should be used 24 to 48 hours and should not be stored for more than 3 days
 - They should be reheated in a safe temperature to avoid toughening of proteins and its indigestibility at high temperatures
 - Chop or mince food finely to speed up heat penetration.
 - Cook additional ingredients before adding to the food.
 - Add sauces, stock or gravy to replace lost moisture.
 - Include additional flavorings inform of herbs, spices or seasonings to replace the lost flavor during the first cooking
 - Cool leftover foods quickly and store in fridge or a cool dry place.
 - Leftovers like meat, fish should be protected from excessive heat by creating them with eggs and bread crumbs.

Examples of leftover dishes

Leftover food	Leftover dish made
Fish (cooked)	Fish cakes, fish rolls, Russian fish pie
Minced beef(cooked)	Rissoles, meat loaf, meat samosa, meat pie, sheperd pie
Bread	Bread sauce, bread pudding, raspings
Peas	Samosa, peas roll
Cassava	Cassava balls
Irish potatoes	Sheperd pie, potato cakes

Cooking leftover foods

Dishes	Cooking method
Hamburger, fish rolls, cassava balls, samosas, meat balls	Frying
Meat pies, meat loaf, fish pie, meat cakes	Baking
Fish in curry sauce, Savoury minced sauce, meat ball curry	Heating in sauces, puddings or grany

BEVERAGE

A beverage is any drink which can be served either hot or cold. Examples include milk, coffee, fruit drinks, sodas, etc.

Beverages are taken because of various reasons which include;

- To cool the body on hot days and warm it on cold days.
- They act as stimulants.
- To maintain the water level of the body. This is needed for the proper functioning of the cells.
- Help in digestion especially if taken after a meal.
- To improve on the nutrient intake e.g. proteins in milk, vitamin C in fresh fruit juice.

Beverages are divided into three (3) main groups. These are;

1. Refreshing beverages

These are usually cool and they quench thirst. They include all the types of fruit and vegetable juices, flavored and coloured water and all fizzy drinks. All the refreshing beverages or drinks contain carbohydrates in form of sugar or sucrose. Fresh fruit and vegetable juices are nutritious and contain a lot of vitamin C and minerals.

2. Stimulating beverages or stimulants e.g. tea, coffee and cocoa.

3. Nourishing beverages e.g. milk

General points to consider when preparing a fresh fruit drink.

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- Always make syrup.
 - Wash all the fruits before using or peeling them.
 - For some fruits like lemon, orange or pineapple, infuse the peel (rind) in the syrup to extract its flavour.
 - Citrus fruits can be cut into half and squeezed on a juicer or squeezer. The others can be sliced and pureed (pulped and softened) on a strainer, strain whenever necessary.
 - Add the cooled and strained syrup to the extracted juice, stir well.

- Taste and add sugar if necessary.
- Chill because cold drinks should be served cold and not warm.