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**Introduction**

**Nutrition and health**

Nutrition is all about eating a healthy and balanced diet. Food and drinks provide energy and nutrients one need to be healthy and for body growth. With a better understanding on this term nutrition it will facilitate and making easier for a person to make better food choices taking in the right nutrient makes the body to get it health fitness. Keeping the body fit is an important thing you can do for your health as there are many physical activities that one can do that also contribute to the body’s fitness in addition to your eating habits.

 Nutrition is a basic human needs and a prerequisites for a healthy life. A good and proper diet is essential from very early age of life for growth, development and an active life. This nutrition is a science that deals with all the various factors of which food is composed and the way in which good and proper nourishment is brought about which is depends greatly on the age, sex, height, weight and degree of activities and rate of growth. Below is a detail on the topic Nutrition and Health

**Nutrition and Health Education**

It is any combination of educational strategies accompanied by environmental support design to facilitate voluntary adoption of food choices and other food and nutrition related behaviors conducive to health and well-being. Nutrition education also takes a critical look at food security, food literacy and food sustainability. This nutrition education promote healthy eating and exercise behaviors. This education about nutrition takes place in colleges, Universities and schools of government agencies and many more by educators with which enhance and create awareness as a means to self-efficacy surrounding the trigger of healthy to behaviors.

In 1969 in USA a recommendation from the white house conference on food, nutrition and health state that nutrition education should be part of school curriculum which was under the authorization of children nutrition act. In 1978 the nutrition education and training program was created by the USDA with the purpose of giving grants to health fund nutrition education programs which are under state education systems.

 **Human growth, development and nutrition**

Growth and development is a common feature of infancy, childhood and adolescence. These states of life denounce and require a heavy nutritional diet for these children do not have a well develop body nutrients store and therefore are very more vulnerable to infection. They also have a larger surface area In relationship to their body size of which all these factors add to their basal metabolic rate which results in and increase requirements nutrients. During puberty in adolescence, they go through a special rapid growth which is call the pubertal growth spurts which they increase in both weight and height, before they need a nutrients intake that will be proportional with their rate of growth which is very fast from birth up to 12 to 14years which slow down giving way for the puberty state which the growth rate increase again before slowing down again. At this state of life micro nutrients which are protein, carbohydrates and fats are greatly needed in high quantity which is due and influence by the rapid cell divisions occurring during their growth. Increase need for this nutrients are reflected on daily requirement for different age growth which some are look at detail below.

**Increase need for nutrients**

 **Energy**

It has proven that infants need more calories or energy more than adults which is due to weight, height and physical activities. Breast milk which is a source of energy in infant over a very big advantage in over manufacture milk. This breast feeding is essential with reduce risk of obesity, allergies, hypertension and type diabetes and it is also linked with improve cognitive development and decrease chances of several infections. Breast milk which is less costly has the following nutrients and constituents

* Water of 87-89%
* Vitamin most especially Vitamin A
* Fats of 3-5%
* Energy of 60-70kcal/100ml
* Carbohydrates of 6.9-7.2%
* Mineral of 0.2% and
* Protein of 0.8-0.9%

 Protein and energy are greatly needed for growth in adolescence and for most micro nutrients recommendations are the same for adults apart from certain minerals for bone development and growth for example; calcium and phosphorus. Before eating healthily would reduce the risk of developing chronic diseases later in life.

**Water**

Infants and adolescence needs enough water to drink most especially when ill or when expose to extreme temperature. This high amount of water required is as a result of larger body surface area compare to body rate and a reduced capacity for sweating when they are compared to adults therefore have a higher risk of mobility and motility from dehydration.

**Essential fatty acids**

Fatty acids or fats are higher in infant than adults. Which some of this fatty acids plays a good rule is n the central nervous system. However predominantly fat are not advice that children should be taking it in large amount. It is very important to note that infancy and childhood has and increase requirements of energy, protein, essential fatty acids, calcium and phosphorus while adolescence's energy protein, calcium, phosphorus and zinc. In the same way adulthood which falls between 19-50years has a slight nutritional needs which differs according to gender for example male need more of vitamin C, K, B1, BE and BE and zinc while female need more of iron. Due to age related changes in the elderly they are vulnerable to nutritional problems. Below are some health challenges that may impact on the diet of an elderly person

* Digestion problem
* Renal changes
* Memory loss which may include forgetting to eat (senile dementia)
* Sensory changes
* Physical problems like feeling pains
* Psychological problem
* Problem of preparing food

Additionally, due to reduction in physical activities and muscle mass an elderly person needs less energy with an increase in vitamin D which reduce the risk in bone loss and fractures. Also, some of these elderly ones get to have difficulties getting adequate nutrition due to age, related diseases, impairment in chowing, swallowing, digesting absorbing nutrients and a decrease production of chemicals to digest food which is the digestive enzyme

**Nutritional Disorders**

 Nutritional disorders is the deficiency of nutrients and micronutrients and the inability for the body to absorb and assimilate them from the food and the inability to synthesize them. This can be due to some factors like repeated infections, poor hygiene, emotional and low socioeconomic condition. Low of awareness on healthy diet, community development and health education has also contribute to malnutrition. There are many types and causes of malnutrition which are as follows;

1. **Protein energy malnutrition (PEM).** This kind contribute to more death register yearly in children age 0-5years. Two forms exist which are kwashiorkor and marasmus and also anemia which is at time experience by pregnant woman more causing death and sicknesses
2. **Vitamin are another group of nutrients that is needed for proper growth.** Vitamin A deficiency is the leading cause of blindness especially in children. Beriberi, Samy, cricket, pellagra and many are still some of the vitamin deficiencies
3. **Flourosk** is a challenge resulting from the ingesting of large amount of Fluorine the consuming ordrinkingofwaterthatcontainthefluorinein excess. This excess lead to disturbance of bone home ostasis (skeletal flourosis) and enamel development (dental flourosis) causing a number of health hazards.
4. **Obesity** is a nutritional health problem that affects all age and sex groups. This condition occurs when the system is over loaded with nutrients or sublimates creating an unpleasant symptoms with unavoidable consequences.

**Prevention of nutritional Disorders**

It includes proper health promotion nutrition education and food, hygiene, family planning and good weaning practices. Specific protective measure are adequate diet, growth monetary, early diagnosis and treatment of infection and hospitalization of critical cases that will help handle the problem. Dietary improvement in fish, vegetables, milk, egg, meat, fruit, sunlight exercise amongst many are healthy practices that helps target health and nutritional problems to an extent.

**Concept of balance diet**

 A balance diet is one or a meal that provide all the nutrients in required or needed amount and proportion. It can be gotten through a blend of the four basic food groups which the quantity depends on the age and sex of the individual. This balance diet also provide the body with non-nutrient such as dietary antioxidant and phytochemicals which boost the body with lots of health benefits. This nutrients that we obtain through this balance diet have vital effects on physical growth and development, maintenance of normal body function, physical activities and health before nutritious food is greatly needed to sustain life and activity. An imbalance of this nutrients can either leads to under nutrition or over nutrition which are eating too little or too much respectively which leads to harmful consequences.

Carbohydrates, fats and proteins falls under micronutrients which are needed in large amount. Vitamin and mineral constitute the micronutrients and are required in small amount. This nutrients all together are needed and are very necessary for the physiological and biochemical processes by which the human body requires, assimilate and utilizes food to maintain related activities.

 Carbohydrates are either simple or complex majors source of energy in all human diet while protein are primary structural and functional components of every living cell. Almost have if the protein which are complex molecule composed of different amino acid which are in our system in the form of the muscle and the rest of it is in the bone, cartilage and skin. This protein are highly needed by children, infants, pregnant women and individual during infection, illness or stress. Fat and oil are a concentrated sources of energy and are made up of fatty acid in different proportions. The type and quantity of fat in the body is obtain from the daily diet influence the level of cholesterol and triglycerides in the blood. Therefore, intake of saturated found in butter, glee and hydrogenated fat and cholesterol found in red meat, eggs organ meat and others should be caution because excess of these substances could lead to obesity, diabetes, cardiovascular disease and cancer. In same way vitamin are chemical compound which required in small amount by the body which are essential for numerous body processes and for maintenance of the structure of the skin, bone, nerves, eye, brain, blood and mueous membrane which are either water soluble or fat soluble. This fat soluble vitamins can be store in the body while water soluble can not as it is easily eliminated or secreted in urine. Vitamin B complex C are heat labile which are easily destroy by heat, air or during drying, cooking and food processing.

 Minerals are inorganic elements found in body fluids and tissue which are required for the maintenance and integrity of the skin, hair, nails, blood and soft tissue. They also govern nerve cell transmission, acid/base and fluid balance enzyme and hormones activity as well as the blood clotting process.

**Malnutrition, under nutrition and over nutrition**

 **Malnutrition:** Malnutrition is a condition that result from eating a diet in which one ore more nutrients are either not enough or is too much such that the diet causes health problem. Incase when the nutrients are not enough is called **under nutrition** or **under nourishment** while when the nutrients are more is called **over nutrition** or **over nourishment.** During pregnancy or before two years of age, if under nutrition occur it can result in pregnant problem with the physical and mental development. This under nourishment which is also call **starvation** has the following signs which are; swollen legs and abdomen, thin body, short height, low energy and poor health. This is mostly as a result of lack of enough high quality food to eat which may can be due to high cause of food and poverty. There are two types of under nutrition which are the protein energy malnutrition and dietary deficiency. The protein-energy form has two severe form that is marasmus (lack of protein and calories) and kwashiorkor (lack of protein) In same way over nutrition is also present in the form of obesity.

**Kwashiorkor**

It is mainly cause by in adequate protein intake which symptoms are wasting, edema, liver enlargement, depigmentation of skin and hair steotosis, hypalbuminemia. Also the belly gets swollen or swelling. It mostly affects children at age weaned when they are weaned depriving of breast feeding to a diet compose largely of carbohydrates

**Marasmus**

It is also cause by inadequate of protein energy intake. This term marasmus means to take away which has symptoms of severe wasting, living little or no edema, mineral subcutaneous fats, severe muscle wasting and non normal serum albumin levels

**Under nutrition and hunger**

Under nutrition encompasses stunted growth wasting and deficiency of essential vitamins and minerals (micronutrients) This term refers to the discomfort that one feel as a result of not eating. This increase the risk of getting infection and infectious diseases which weakened every part of the immune system.

**Malnutrition**

 Malnutrition can be a consequence of health issue such as gastroenteritis or chronic illness most especially HIV, diarrhea and other infection can cause malnutrition through decrease nutrients absorption decrease in the food intake increases metabolic requirements and the direct nutrients loss. Infections such as parasitic infection e.g. **Intestinal worms infection** (helminthiasis) can also lead to malnutrition that most children especially those in the developing countries suffer from which may at times aggravate by lack of sanitation and hygiene

**Nutrition and Metabolism**

 Nutrients derive from food is use by the body to provide energy maintain or repair body structure and regulate metabolism. Metabolism is the chemical process the body uses to transform food that has been eaten to generate fuel that sustain and keep one alive. Food which is consist of protein, carbohydrates and fats are broken down by enzymes which are found in the digestive tract then carried to the cells where there are used up as fuel. These substances are either by the body use up immediately or are stored in the liver, body fats and muscle tissue for later use.

 When a metabolic process fails causing the body to have either more or less of the essential substance needed to stay healthy. It is term metabolic disorder which our body are very sensitive to this errors. For the body to perform all it function effectively, it needs to most have amino acids and proteins e.g. the brain needs calcium, potassium and sodium to generate electrical Impulses and lipase to maintain a healthy nervous system. This metabolic error or disorder can also occur when one of the body organ fails to perform it’s function pancreas or the liver which man can as a result of genetics, deficiency in certain hormones or enzyme concerning much of a certain foods or other factors.

**Public Health And Nutrition**

 In maintaining a quality level of health nutrition remains one of the wire stone as a result of this and it important, health officials often work towards and creating high level of nutrition among the general public therefore, without nutrition the public become very vulnerable to diseases, illnesses and other severe health challenges

 The US department of health and humanitarian service discussed the importance of public health nutrition starting the eating nutritional meal leads to a decrease in hypertension, diabetes, heart diseases, osteoporosis and weight gain. It is also a good Link making the brain healthy and intelligent.

 A public health nutritionist is an expert who works in the field of nutrition by providing education and resources related to nutrition career which could also mean designing of a public nutrition program, the assessment, meal plan development, food security, food safety and healthy eating encouragement to schools and communities within an area.

 **Significance of public health and nutrition**

 Malnutrition is the cause of at list 50% death in children under 5years of age with statistic, revealing and alarming rate of problem related to nutrition. It also affects both the development and functioning of the brain in the mental and cognitive development with all of this. It’s set up a serious negative impact on quality of life of and individual.

Fast food refers to food that can be prepared and saved quickly. It can come from places and service like restaurant, counter service and others. This kind of food is very popular for it is in expensive, convenient and taste very good. The ingredients use in preparing this kind of food is cheap such as high fat, refined grains and added sugar and fat instead of nutritious ingredients such as lean protein, whole grains, fresh fruit and vegetables. Sodium which is in the form of salt is also use in the preparation of this fast food which is use as a preservative, making the food to be more flavorful and satisfying. Consuming such kind of food on daily basis is not good for our health for as it cause health challenges like hypertension, heart diseases, unhealthy weight gain or loss according to FDA (Federal food and Drinks Administration) artificial trans fats from particular hydrogenated oils be removed from food sold at restaurants.

**Food safety and preservation**

 Food preservation focuses to minimize the physical and chemical changes that occur during storage while ensuring food safety to help maintain good health. Good food preservation most be retain all it nutrients or it should be ensure only minimum loss of nutrients which includes protein, carbohydrates, fibers, mineral and vitamin during the storage. On the other hand food safety is all about handling, storing and preparing food to prevent infection and help to make sure that our food keeps and retain enough nutrients for us to have a healthy diet. Basically food preservation ensure that food remains in a state where it is;

1. Not contaminated by pathogenic organisms or chemicals
2. Does not loss optimum qualities of colors, texture, flavor and nutritive value.

**Methods of food preservation**

There are many methods of food preservation noted as follows;

1. **Drying** which is the oldest method of food preservation. This method reduces water activities preventing bacteria growth. It also reduce weight facilitating easy transportation. Sun, wind as well as modern application of like bed dryers, fluidized bed dryers, freeze drying, shelf dryers, spray drying and commercial food dehydrator and household oven are also use in the drying process.
2. Freezing is a method of food preservation of which prepared food stuff is stored in a cold storages
3. Smoking is a process by which food is expose to the smoke from burning wood. Smoke contain antimicrobials and antioxidant and most oftenly meat and fish are smoked. This method is disadvantageous in that smoking as a preservative enhance the risk of cancer.
4. Vacuum parking creates a vacuum by making bags and bottles airtight and since there is no oxygen in the created vacuum bacteria turn to die.
5. Other methods are salting, sugar and lye canning and bottling, jellying potting jugging. Burial in the ground and others.

Food safety and hygiene is of important as it helps to protect the health of consumers from food burn illnesses and food poisoning. Food poisoning occurs when food become contaminated by bacteria, virus and other germs which end up threatening life.

 **Nutrition and health in Cameroon**

 The protracted crisis in neighboring Nigeria and the Central African Republic as well as the civil war and crisis on rest and violence in Cameroons North West and Southwest region are driving the general population displacement and the exacerbating humanitarian needs in the country Cameroon. Reports from the UN reveals that 3.9million people in the country requires emergency assistance to meet their basic needs.

 The present situation says approximately 2.6million people in Cameroon are currently facing crisis or the worse level of execute food in security that is phase three leading to several malnutrition and are in need of food assistance. This figure had increase with nearly 1.7million people from the data gotten from 2019 same period. This increase is due to worsening conflicts in the Far North, Northwest and Southwest region. This crisis has displace more than 20000 people as Internal Displace Persons (IDPs) and due to the ongoing conflicts in the neighboring countries has also send persons flying in to the country. This has cause household in the country to be facing continues crisis and stress most especially those in the crisis zone and climate change and its disasters such as drought and floods has stress food suppliers and agricultural centers leading to scarcity of crops which eventually leads to malnutrition, hunger and dead.

**Respond**

 The office of food for peace partners with the UN world food program to provide cash base transfer and in-kind emergency food assistance to vulnerable IDPs, host community members and refugees especially in the conflicts hit zones. N.G.Os also assisted food insecure people with cash transfers for food and complimentary activities that strengthen agricultural production and other income generating activities.

 Also this threat in the food supply from violence, disasters in Cameroon has been greatly encourage by the poor government support but fortunately, organization such as the WFP (World Food Program) and Action Against Hunger are working tirelessly to improve the nation’s food security so that people of Cameroon can leave healthily and happy lives most especially children under 5years of age as 40% of her population are leaving below the poverty line. Since gaining it independence in 1960 the Republic of Cameroon has been ravage by death and political turmoil remaining largely under develop through out the decades. The few roads linking rural-urban centers are though on the decline, inefficient and the rural population faces the challenges of supplying farm products to market and Urban centers of the country as some of the farm products end up rotten in the farm leading to insecurity and chronic malnutrition. This malnutrition has been reduce by the Food by Prescription Program (FPP) that has assist malnourishment HIV infected people and the general population by educating them on ways of eradicating malnutrition and it’s related threat as FORUDEF founders believe that assess to education allows individuals to become knowledgeable and self-reliant eventually overcome poverty through their own efforts. In partnership with the Bees abroad UK, the organization brought Bee keeping to Akwaya and Buea region creating jobs for local and unlocking growth potential. They also open work shops to train ambitious Cameroonians into successful Bee keepers who can then pass the threat to future generations. The effort of this organization and many others have gone a long way to reduce and fight hunger in Cameroon giving hope that progress can continue to be made despite the country’s 68 ranked of 104 on the 2015 global hunger index.

**Advantages and disadvantages of nutrition and health**

**Disadvantages of nutrition and health**

1. Poor nutrition can contribute to stress, tiredness and the capacity to work
2. It contribute to the risk of developing some illnesses and other health challenges such as overweight or obese, tooth decay, high blood pressure, high cholesterol, heart diseases and stroke, cancer, diabetes and depression
3. It lead to high cost of living as much money is spent in purchasing good food
4. It lead to body instability as less nutrients is derived from this poor nutrition
5. Processing food often involves nutrients losses which can make it harder to meet your needs if this nutrients are not added beck through fortification or enrichment

**Advantages of nutrition and health**

1. It boost immunity and support healthy growth
2. Healthy nutrients support brain development and intelligence
3. It help achieve and maintain a healthy weight and strengthen body bone
4. It support healthy pregnancy and breastfeeding
5. It reduces stress and fight against diseases

**Conclusion**

 Nutrition is a very critical part of health and development and better nutrition is related to improve infants, child and maternal health, stronger immune system, safer pregnancy and child birth, lower risk of non communicable disease such as cardiovascular disease, diabetes and many more. Healthy people most especially children learn better and people with an adequate nutrition are more productive and can create opportunity to gradually break the cycle of hunger, malnutrition and poverty. Malnutrition in all its form present significant threat to human health. Presently the world faces a double burden of malnutrition which both include over weight and under nutrition most especially in the low and middle income countries. WHO and other organization are providing good and scientific advice and decisions making tools that can help countries like Cameroon takes action to address all forms of malnutrition to support health and well-being for all and at all ages.

**References**

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