



Manual on Healthy Eating for School-Age Children

**For Use By Teachers, Peer Educators,
Health and Other Extension Workers**

August 2015



Healthy Eating Messages For School-Age Children

- 1.** Eat meals prepared from a variety of the Go, Grow and Glow foods.
- 2.** Eat adequate quantities of food to meet your needs.
- 3.** Eat fresh fruits and vegetables with meals.
- 4.** Eat legumes often.
- 5.** Use iodized salt and other fortified food products in food preparation.
- 6.** Use clean hands, safe food and clean utensils.
- 7.** Choose healthy snacks.
- 8.** Drink fluids regularly, especially potable water.
- 9.** Avoid salty, sugary and fatty foods and drinks.

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Introduction

This 'Manual on Healthy Eating for School-Age Children' has been prepared for basic education schools (kindergarten, primary, and junior high schools) in Ghana to improve the health of school-age children (aged 4 to 15 years). It is intended to be used by teachers, peer educators, health workers and other extension workers.

Though nutrition forms part of the school curriculum, children leave school with very little knowledge on healthy eating habits, and on the required amounts and quantities of food needed to have the nutrients for their bodies to grow and develop.

These guidelines have been structured in a way to ensure that by the time of completing basic education a child will know how to eat well to remain healthy.

The best way to promote healthy eating and develop healthy eating choices is when instructors or caregivers, who have a significant influence on children, are role models and follow the same guidelines recommended in this manual.

Outline and structure

This manual is structured as follows:

- **Section 1: Healthy Eating at School-Age:** Discusses the reasons behind healthy eating and links the common nutritional problems which can occur as a result of poor eating habits.
- **Section 2: What is Healthy Eating?** Explains the three basic principles of healthy eating.
- **Section 3: Basic Healthy Eating Rules:** Outlines the basic rules of healthy eating from the three basic principles.
- **Section 4: Basic Food Safety Practices:** Discusses the issues on food handling and safety practices that need to be followed to eat healthily.
- **Section 5: Complementary Healthy Practices:** Discusses other complementary healthy practices that need to be taken into consideration to maximize the benefits of the food eaten.
- **Section 6: Benefits of Healthy Eating:** Summarizes the benefits of healthy eating to both the school-age child and their family.

Section 1: Healthy Eating at School-Age

Children at school-age are very active and require high amounts of energy. It is important that school-age children are fed a variety of foods, with meals rich in both macro- and micronutrients. A child's eating pattern begins to change around the age of 6 years, when they begin to eat three main meals a day with snacks in between. A school child's physical growth develops at a steady pace so a nutritionally balanced diet is needed to support the growing body.

Very little attention has been paid to the nutrition of school-age children because this age group is not considered as vulnerable as preschool children, especially children below 2 years of age. However, many of the problems from preschool age are carried over into school-age, and some nutritional problems get overlooked and worsen. When children are taught to eat healthily they learn to prevent and reduce the occurrence of these nutritional problems. They grow into healthier adults with minimal diet-related problems. Nutritional problems in children are preventable if children, in particular the school-age child and the communities in which they live, adopt healthy eating practices.

Common nutritional problems of the school-age child

The common nutritional problems which can be prevented or avoided through healthy eating during school-age are: anaemia; iodine deficiency; stunting; wasting; overweight and obesity; dental caries and other nutrient deficiencies.

Although there is considerable information on the nutritional status and practices among children between 0 to 5 years old in Ghana, little is known on the practices of school-age children (6 to 15 years).

Anaemia

Anaemia occurs when there are low levels of haemoglobin (the substance which gives blood its red colour) in the blood. Anaemia levels are determined by the measurement of haemoglobin in the blood and can be divided into three groups:

- **Mild:** Haemoglobin concentration between 10.0 to 11.4 grams per decilitre (g/dL).
- **Moderate:** Haemoglobin concentration between 7.0 to 9.9 g/dL.
- **Severe:** Haemoglobin concentration less than 7.0 g/dL.

When children do not eat healthily and eat insufficient amounts of iron-rich foods, they can become anaemic. When children have malaria and/or are infected with worms such as soil-transmitted helminths which include hookworm, round worm and whipworm or schistosomes that are responsible for the disease schistosomiasis they can also become anaemic. In Ghana, approximately four out of every 10 school-age children are anaemic¹ which makes them feel weak and become tired easily. They are unable to concentrate and learn well in school. Consequently, anaemic children perform poorly in class. The nutrition data that is available indicates that anaemia is prevalent among school-age children, and since similar problems exist in children aged 0 to 59 months^{2,3}, it can be inferred that anaemia is carried over from pre-school ages.

¹ (Ghana Health Service, 2007)

² (Ghana Health Service. Macro International Inc., 2003)

³ (UNICEF, GHS, 2011)



Iodine deficiency

Iodine deficiency occurs when foods with high levels of iodine such as sea foods are not consumed. Iodine deficiency is one micronutrient deficiency commonly found in Ghana⁴. In several parts of Ghana, because of the low levels of iodine in the soil, as a result of erosion, the crops are low in iodine. When school-age children lack iodine in their diet, their brain development and function is reduced. Such children have difficulties studying in school; they have a low Intelligence Quotient (IQ) which affects their learning ability and school performance. Iodine deficiency in its severe form also causes goitre (an enlargement of the thyroid gland). Iodine deficiency can be prevented by cooking with iodized salt. More than half of all households in Ghana consume salt that is not iodized and only around three out of every 10 Ghanaian households consume adequately iodized salt.

Overweight and obesity

People who are overweight consume more calories than they can burn. When individuals are extremely overweight they are termed obese. Excessive intake of fatty foods, sugary drinks and consumption of inadequate quantities of vegetables and fruits can lead to overweight and obesity. Childhood obesity occurs when children and adolescents are severely above their normal weight for their height. Obese and overweight children are more likely to grow into obese and overweight adults and are at risk of long-term nutritional problems such as diabetes (high blood sugar), hypertension (high blood pressure), high cholesterol and certain cancers such as breast cancer, colon cancer, prostate and rectum cancer. Obesity can cause problems for a child's healthy growth and development. Childhood obesity is an emerging problem in Ghana especially in urban areas.

Stunting

A child is said to be stunted when he is too short for his age (low height-for-age). When children are poorly fed over long periods of time, they fail to grow. Stunting can also be caused by frequent and or prolonged illness. In Ghana, two out of every 10 children are too short for their age⁵. These children have less energy to work, play and learn. Their ability to fight infections is also reduced. They can stop growing and can also lose weight. The nutritional indicators that are available indicate that stunting is prevalent among school-age children, and since similar problems exist in children aged 0 to 59 months, it can be inferred that stunting is carried over from pre-school ages.

Wasting

A child is said to be wasted when he is too thin and it is determined by comparing a child's weight with the standard for his height. Children of the same height should be of similar weight. A child is wasted when his weight is far lower than the average or standard weight for people of his height. Wasting occurs after periods of hunger and food shortage or severe illness. In Ghana 2 out of 100 school age children are wasted³.

Vitamin A deficiency and other nutrient deficiencies

The extent of nutrient deficiencies other than those described above among school aged children is not known. In preschool children, however, vitamin A deficiency is common due to inadequate consumption of vitamin A-rich foods. Since most nutritional disorders are carried over from the preschool years into school age due to poor dietary practices, the prevalence of vitamin A and other nutrient deficiencies is likely to be high in this age group.

Dental caries

Dental caries are holes in the teeth caused by overindulging in sugary foods such as soft drinks and confectionery which may predispose school-age children to poor dental health. The risk of tooth decay is greatest with the consumption of large amounts of sticky, sugary and starchy foods that stick to the teeth (e.g. sweets, sodas and candies, etc.). Improper and infrequent cleaning of the teeth may result in dental caries.

⁴ (Ghana Health Service, 2007)

⁵ (Ghana Health Service, 2013)

Section 2: What is Healthy Eating?

When we eat the right types of foods in the correct quantities these provide the appropriate amounts of nutrients to meet the body's needs at any stage of a person's growth and development. Eating healthily also involves reducing the amount of salt, sugar, and fats in our food and increasing the amounts of fibre in our food. The meals should also be free from germs and harmful substances. These form the three principles of healthy eating.

The Three Principles of Healthy Eating

1. Meals should have a variety of nutrients to satisfy the body's needs and to enable it to function properly.
2. Meal portions should be enough for a person's age and their activity level.
3. Meals should be safe and free from germs.

Meals should have a variety of nutrients to satisfy the body's needs and to enable it to function properly

Food is essential for everyday life and is the source of energy and essential nutrients the body needs to grow and develop; to move, work, play, think and learn. The food we eat is broken down into nutrients which can easily be absorbed and used by the body to function properly. Nutrients help the body to grow, repair or replace old tissues, provide energy for the body and protect the body from diseases. Nutrients work together and if the body lacks any nutrients for a period of time it will not function properly. It is therefore, important that we eat meals that provide all the nutrients. All foods in their natural form contain nutrients and different foods contain different amounts of the various nutrients. The best way to ensure that all nutrient needs are met is to eat a variety of foods available.

Meal portions should be enough for a person's age and their activity level

Children do not need the same quantities of food as adults. The quantity of food required by an individual depends on a number of factors such as age, sex, and how active the person is. Older children need larger portions of food than younger children. Children should not just eat to satisfy hunger, the food consumed should have adequate quantities of the various food items to meet nutritional needs. Protein-rich foods (such as fish, meat, beans, and nuts), vegetables and fruits are foods that are often lacking or of minimal quantity in children's diets.

Details of quantities of food required by children are discussed in Section 3.

Meals should be safe and free from germs

Germs and other harmful substances like chemicals and poisonous liquids can easily get into food and cause illness. It is important to ensure that food for children is free from germs and such harmful substances. There are various ways in which these substances get into food. This means that food used in cooking should be of good quality and should be cleaned thoroughly; and food should be handled in a manner not to introduce germs and poisons. Cooking utensils must always be washed with potable water before use. Food must not be left or shared on the ground. Whenever buying cooked foods, the food must always be hot (this is one way to prevent spreading infections through food).

The ways to ensure food are kept safe is described in Section 4.



Section 3: Basic Healthy Eating Rules

The three principles of healthy eating have been broken down further into basic healthy eating rules for easy understanding and practice.

Basic Healthy Eating Rules

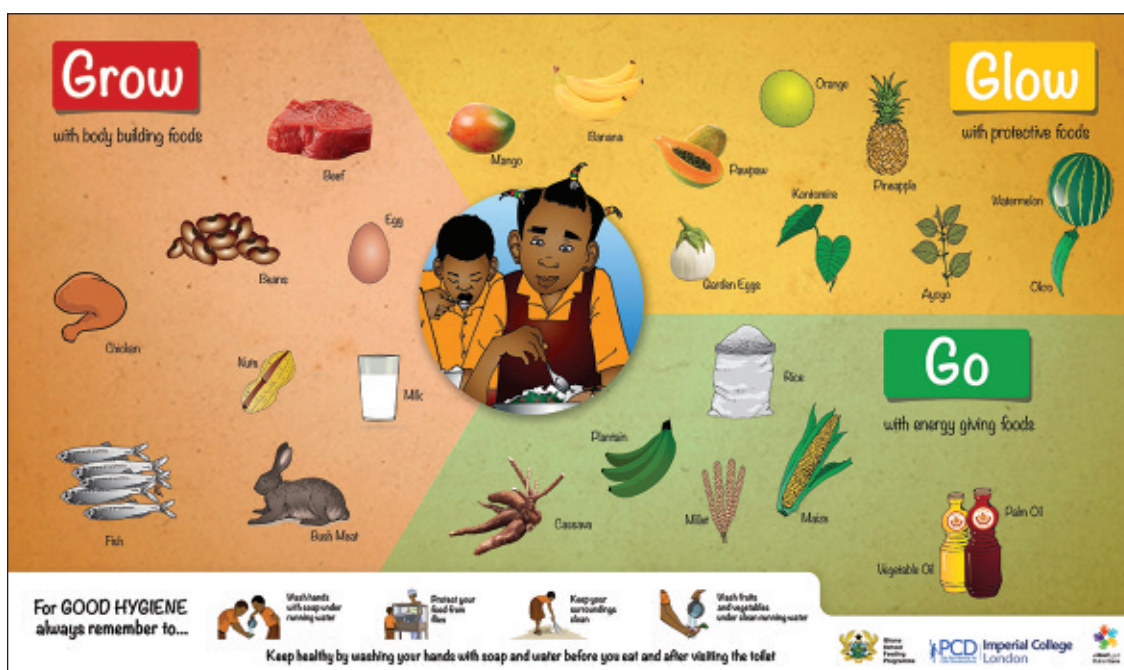
- Eat meals prepared from a variety of the Go, Grow and Glow foods.
- Eat adequate quantities of food to meet your needs.
- Eat fresh fruits and vegetables with every meal.
- Eat legumes often.
- Use iodized salt and other fortified food products in food preparation.
- Use clean hands, safe food and clean utensils.
- Choose healthy snacks.
- Drink fluids regularly, especially potable water.
- Avoid salty, sugary, and fatty foods and drinks.

Eat meals prepared from a variety of the Go, Grow and Glow foods

Food items can be grouped according to the main nutrients they contain. There are three main food groups:

- Group 1: Energy giving foods (Go foods).
- Group 2: Body building foods (Grow foods).
- Group 3: Protective foods (Glow foods).

Each of the three food groups perform a particular function in the body and work together, but the body will not function properly if it lacks any of the three food groups for a period of time. It is therefore, important that every meal provides a different mixture of nutrients from the three food groups, and combining these nutrients in the right proportions and amounts will depend on the age and activity levels.



Group 1: Energy giving foods (Go foods)

Energy giving foods, also known as Go foods, are starchy and fatty foods that mainly provide energy and fuels the body to move about and be active, to keep the heart pumping blood, the lungs breathing, and the mind active, etc. These foods also contribute other nutrients, but in smaller quantities. The starchy foods usually contain fibre which helps with the digestion of food. Grains like millet, maize and rice are best eaten whole and not with the skin removed like white polished rice. The body becomes weak when it does not receive enough energy giving foods.

Examples of energy giving foods: Cassava, yam, plantain, maize, millet, rice, sorghum, palm fruit, and shea nut. An array of oils also provides large amounts of energy such as vegetable, palm, groundnut and coconut oils.

Group 2: Body building foods (Grow foods)

Bodybuilding foods, also known as Grow foods, are foods from animal sources and provide nutrients that are needed to build and maintain muscle, blood, skin and bones and other tissues and organs in the body.

Examples of body building foods: All types of meat, fish, eggs, milk and milk products. Some plant foods such as those from the bean family e.g. cowpea, soya bean, bambara beans, and nuts and oilseeds like groundnuts, cashew nuts, 'agushie' (melon seeds), and sesame seeds also perform growth functions in our bodies when eaten.

Group 3: Protective foods (Glow foods)

Protective foods, also known as Glow foods, are foods that when broken down will protect the body from infection. These nutrients called vitamins and minerals are required in the body in small quantities compared to the Go and Grow foods and are mainly found in fruits and vegetables.

Examples of protective foods: Fruits (oranges, mangoes, pawpaw, watermelon, and baobab fruit, etc.), and vegetables such as 'aleefu' (amaranthus), 'nkontomire' (cocoyam leaves), 'bra' (hibiscus), 'ayoyo' (corchorus), tomatoes, garden eggs, etc.

Examples of healthy combinations from the above three food groups include: Groundnut soup with fish, banku and orange; and rice with bean stew, tuna and pineapple.

The best way to ensure that all nutrient needs are met is to eat a variety of foods and all meals should have adequate quantities of food items selected from each of the three food groups.

Eat adequate quantities of food to meet your needs

Quantities of nutrients required for the body vary with age and sex. While boys need more quantities of food than girls, older children also eat larger quantities of food than younger children. Children in general do not need the same quantities of food as adults. Older school-age children (7 to 10 years of age) need slightly larger portions than younger school-age children (5 to 7 years of age). The tables below⁶ show the average quantities of the various food items required by the school-aged child and their corresponding handy measure dimensions.

⁶ (PCD, 2013)

Composite meals	CHO (g)	Protein (g)	Fat (g)	Iron (mg)	Vit. A (RE)	*Energy (kcal)	#Energy (kcal)	Energy met (%)
308g plain rice + 1 stew ladle of kontomire stew + 24.41g tuna	82.47	17.7	29.07	2.4	3.42	662.31	649.19	99.72
308g plain rice + 1 stew ladle of kontomire stew	82.47	11.42	26.60	2.04	3.42	614.96	600.12	92.18
308g jollof rice + 1 egg	94.43	15.08	15.24	0.68	-	587.20	576.88	88.61
422g banku + 2 stew ladle of okro stew + 24.41g tuna	74.56	19.4	31.82	6.73	3.42	662.22	629.7	96.73
422g banku + 2 soup ladle of palm nut + 24.41g tuna	62.95	16.36	32.26	4.29	3.42	607.58	599.49	92.09

*Calculated based on the fact that: 1g carbohydrate = 4kcal, 1g protein = 4kcal and 1g fat = 9kcal thus energy values are theoretical values; #Reported from FPro is metabolisable energy

Dimensions of handy measure models

Food item	Width (cm)	Length (cm)	Thickness (cm)
Tuna	4.5	5.5	2.2
Fried plantain	4.1	11.4	1.0
Boiled plantain	4.1	12.0	2.5
Boiled yam	4.0	5.5	4.6

The food models are developed based on the above handy measure dimensions which represent the sizes needed to meet the 15% and 70 % of energy from protein and carbohydrate respectively for 30% RDA of total energy needed.

Eat fresh fruits and vegetables with every meal

Fresh fruits and vegetables provide important vitamins and minerals for the body. They are also a good source of fibre which helps the body to digest food better and prevent constipation. However, some of the vitamins can be easily destroyed during food preparation. Fruits are therefore, best eaten fresh. To avoid destruction of vitamins through cooking, vegetables should not be overcooked. It is recommended that we eat five portions of fruit and vegetables a day to live healthily. The best way to achieve this is to include fruits and vegetables in every meal. For school-age children consumption of dark green leafy vegetables, such as 'kontomire' (cocoyam leaves), 'allefu' (amaranthus), and bitter leaves (Vernonia), should be encouraged as these are important sources of iron, folic acid and vitamin A.

Eat legumes often

Legumes such as beans, nuts and oilseeds, should be eaten as often as possible and preferably in combination with cereals. These legumes when combined with cereals in the right proportions are an excellent source of protein equivalent to that found in fish or meat. Legumes are also a source of fat that is healthier than animal fat. Frequent consumption of legumes is a good way of healthy eating.

Use iodized salt and other fortified food products in food preparation



It is important to cook all food with iodized salt to prevent goitre (a large thyroid gland) in children. Iodine in salt improves brain performance; helps make children smarter and perform better in school. Look for the iodized salt logo on salt packages. Other fortified foods such as vegetable oil fortified with vitamin A also provide essential nutrients.

Use clean hands, safe food and clean utensils

If food is not handled properly and safely it can cause sickness. The sickness is caused by dangerous germs (micro-organisms), poisonous substances like metals, or chemicals (e.g. insecticides and pesticides). These dangerous germs or substances get into our food through the way we handle food: by using unclean hands, unclean utensils and unsafe food and water contaminated with germs or by storing food in containers previously used to store harmful substances.

Foodborne illnesses can be avoided if children and cooks practice good personal hygiene; if cooks use safe food and water, clean utensils, and if the area where food is prepared and consumed is kept clean.

Section 4 explains basic food safety practices in detail.

Choose healthy snacks

As well as consuming three meals a day, school-age children often snack between meal, snacks can contribute substantially to their nutritional intake. Sugary foods and sweets can cause tooth decay. Children are also at risk of becoming overweight if they frequently consume fatty and or sugary foods and drinks. Overweight children often grow to become overweight adults and are more likely to suffer from hypertension and diabetes. Children should select healthy nutritious snacks such as fruits (e.g. bananas) and nuts (e.g. groundnuts) with roasted plantain, 'koose' (i.e. fried bean cakes), 'kuli-kuli' (spiced ground peanuts), and they should limit their intake of fatty, salty and sugary foods and drinks.

Drink fluids regularly, especially potable water

A person can survive for up to 4 weeks without food, but no longer than 3 days without water. Water performs many different functions inside the body and is a major component in every cell. Water is responsible for keeping moisture in the body, for promoting healthy skin, for transporting oxygen in the blood stream, for carrying nutrients throughout the body, and for promoting optimum functioning of various organs. Aside from helping the body maintain these regular functions in the body, water can also help decrease the occurrence of certain abnormal conditions and illnesses.

In order to keep organs in the body functioning smoothly and to get the most benefit from water, it is recommended that a person should drink around two litres of water a day. Lack of water in the body can lead to dizziness, headaches, weakness and tiredness. Lack of water intake can also lead to severe problems with other important organs such as the heart, kidneys, and skin.

Avoid salty, sugary and fatty foods and drinks

Salt and sugar are found naturally in a lot of foods and can fulfil all necessary requirements without these being added during food preparation. When excess salt and sugar is added to food, it can be harmful to the body. High salt intake can lead to high blood pressure and cause excessive weight gain and obesity which can lead to heart problems and diabetes.

Frequent consumption of oily and fatty foods leads to rapid weight gain. Fried foods should be eaten in moderation whilst fatty meat and oily soups and stews should be avoided. It is important to select foods that contain healthy fats such as fish, oilseeds and nuts. All visible fat from meat should be trimmed off and skin from poultry should be removed where possible. Excess oils in stews and soups should be skimmed off.

Section 4: Basic Food Safety Practices

Germs in the environment and on food can multiply and contaminate food. Eating contaminated food can lead to food poisoning and serious illness. To reduce the risk of food poisoning and illness it is important to follow the basic rules of good hygiene whenever and wherever food is prepared or food is bought ready-prepared to eat. It is important to ensure that the food eaten is always properly washed and cooked to avoid germs entering the body.

Basic Food Safety Practices

- Select wholesome foods and use safe water.
- Wash hands with soap and running water especially during five important times.
- Wash fresh fruits and vegetables thoroughly under running water before use.
- Cook food thoroughly and serve hot.
- Wash cooking and serving utensils with soap and running water before and after use.
- Keep food covered to prevent contamination.
- Choose ready to eat foods that are stored and served correctly.



Select wholesome foods and use safe water

It is important to use fresh ingredients whenever possible. Food can only be as good as the ingredients used and therefore, selecting good healthy choice ingredients is vital. Avoid food that is damaged or rotten. Vegetables such as tomatoes and peppers should not be damaged and should be free from mould. Use safe water or treat water to make it safe. To treat water and make it safe, observe the following steps: 1. Filter the water through a clean cloth or filter paper or allow it to settle. 2. Draw off the clean water. 3. Boil the clean water to kill germs. Rain water collected in clean tanks is safe as long as the tanks are protected

from contamination from birds and other animals. Safe water is needed to wash fruits and vegetables; to add to food; to make drinks and ice; for cooking and cleaning eating utensils.

Wash hands with soap and running water especially during five important times

Regular hand washing is important to maintain good health. It can prevent a person from getting sick or from spreading germs to friends, family or even an entire community. Numerous illnesses can be spread by people who neglect basic hand washing hygiene practices, either through hand-to-hand contact or by leaving germs on commonly used surfaces. It is therefore, essential to regularly wash your hands with soap and running water (or to use a hand sanitizer containing at least 60% alcohol). Although thorough hand washing cannot remove every germ, appropriate hand washing can remove most of them. Using soap and running water are the best ways to remove germs. It is important to make sure that hands are always washed during five important times:

1. Before preparing food.
2. Before eating food.
3. Before feeding a child.
4. After changing a baby's nappy or assisting a child to go to the toilet.
5. After visiting the toilet.

Wash fresh fruits and vegetables thoroughly under running water before use

Fresh fruits and vegetables may be covered with the eggs from harmful worms or other germs. Therefore, fruits and vegetables need to always be washed in clean water before cooking. Vegetables can also be washed in salty water or vinegar. Fruits and vegetables especially those that are eaten raw such as; mangoes, 'alasa' (African star apple), 'aluguntugui' (soursop), sour apple and shea fruit, must be washed thoroughly under clean running water.



Cook food thoroughly and serve hot

During cooking it is important to thoroughly heat all food (especially meat, poultry, eggs and fish) to ensure that all germs associated with the food are destroyed. Before serving or buying cooked food, ensure the food is very hot. This is one way of preventing the spread of infections through food. Buy food from clean vendors who cook and sell food in a clean environment and serve cooked food with a serving utensil and not with bare hands. Choose vendors who have their food covered and who provide clean safe water for drinking and washing. Make sure you are served with a washed clean plate and spoon. Leftover food should be thoroughly heated before eating.

Wash cooking and serving utensils with soap and running water before and after use

Cooking utensils must always be washed with potable water before use. Wash all cooking utensils in clean water with soap after each meal; and change the washing and rinsing water often. Always use fresh and safe sources of water for cooking and washing.

Keep food covered to prevent contamination

Cover food properly at all times to prevent contamination by flies, insects, pests, and dust. Foods should be stored with care and storage areas should be kept clean, cool and dry.

Choose ready to eat foods that are stored and served correctly

Buy cold foods such as yoghurt, ice cream, and yoghurt drink only if they are well chilled or frozen. Food should be served on a raised platform or table and not on the ground. Avoid handling cooked food with bare hands and fingers during service.



Section 5: Complementary Healthy Practices

Apart from the core issues related to food and food safety, there are other healthy practices that will need to be adopted to get the maximum benefits from the food that is eaten.

Complementary Healthy Practices

- Maintaining good personal hygiene.
- Preventing worm infections.
- Preventing malaria.
- Living in a healthy environment.
- Regular physical activity and exercise.

Maintaining good personal hygiene

It is important to maintain good personal hygiene in order to continue to stay healthy. Some good personal hygiene activities include: brushing teeth; cutting nails; taking regular baths; and wearing clean clothes. Bad personal hygiene exposes the body to germs that can cause diseases. It is also important to avoid coughing or spitting near food or water and to cover any wounds on hands with sterile and waterproof plasters and bandages to avoid the contamination of food.

Preventing worm infections

To help control worm infections that cause diseases like soil transmitted helminthiasis (STH) and schistosomiasis, in school-age children it is important to take deworming medication at least once a year. When a child is infected, the worms feed on the food eaten, thereby limiting the child in receiving the nutritional benefits from the food. Children are most commonly affected by worm infections which can affect their ability to learn. The Ghana Health Service and the Ghana Education Service provide deworming to all basic schools in the country giving a deworming pill to schoolchildren once every year.

Preventing malaria

Malaria is a common disease that affects most Ghanaians. It is transmitted through being bitten by an infected mosquito that carries the malaria parasites (a microscopic organism) in its saliva. The malaria parasites reduce the nutritional status of the person it has bitten; it also relies on the person's blood to survive reducing the blood of the infected person and causing anaemia. Malaria can be prevented by sleeping in insecticide treated nets, clearing nearby bushes and getting rid of stagnant water.

Living in a healthy environment

Most diseases and infections that affect people are found in their environment. It is therefore, important to keep the environment clean. It is important to have a dustbin for the collection of rubbish and a dumping site far away from food and people. Avoid keeping rubbish near food sources. It is also important to properly dispose of liquid waste through the use of a covered, porous-walled chamber that allows water to slowly soak into the ground (soakaway) and other safety methods e.g. sinks.

Regular physical activity and exercise

It is important to engage in regular physical activity and exercise to help keep the body working properly, and to get the best from the food eaten. Regular physical activity and exercise can help to reduce the risk of developing chronic diseases such as obesity, heart disease, high blood pressure, and diabetes (high blood sugar). It is important to balance the food eaten with the energy needed for physical activity to help maintain a balanced weight.

Section 6: Benefits of Healthy Eating

The benefits of healthy eating cannot be overemphasized. This section highlights some of the benefits associated with healthy eating.

Benefits of Health Eating

- The child grows well physically.
- The child attends school regularly and performs well at school.
- The child does not develop nutrition-related diseases or other nutrient deficiencies.
- The child is healthy with infrequent sickness and can recover quickly when sick.
- The family saves money and time as they infrequently seek healthcare.

The child grows well physically

As children eat well they are able to grow well. Healthy eating helps children grow and maintain a standard height and weight for their age. However, unhealthy eating will have an impact on growth:

- A child who is too short for their age is stunted.
- A child whose weight is less than the standard for their age is underweight
- A child whose weight is too low for their height is thin or wasted.
- A child whose weight is too big for their height could be overweight or obese.

It is important to know how well a child is growing by comparing weights and heights on standard charts. You can also calculate and compare their Body Mass Index (BMI) with the standard for their age:

- A child with a low BMI indicates that they are too thin and need to increase their food intake.
- A child with a high BMI indicates that they are overweight and need to exercise more regularly, avoid fatty and oily foods and eat more fruits and vegetables.

Body Mass Index (BMI)

The BMI is defined as the individual's body mass divided by the square of their height. For children the figure obtained is compared with the standard for their age.

The BMI provides a measure of a person's *thickness* or *thinness*, allowing health professionals to discuss overweight and underweight problems more objectively with their patients.

The child attends school regularly and performs well at school

The nutrition and health status has a considerable effect on a child's learning and on how well a child performs at school. Children who lack certain nutrients in their diet (particularly iron and iodine) or who suffer from under-nutrition, hunger, worm infections or other nutrition-related diseases do not have the same potential for learning compared to healthy and well-nourished children.

Poor health and poor nutrition among school-age children impairs their cognitive development either through physiological changes or by reducing their ability to participate in learning, or both. These children do not perform as well at school and are more likely to drop out of school compared to other children who are not impaired. Irregular school attendance of unhealthy children with poor diets is one of the key factors for poor performance. Even temporary hunger, common in children who are not fed before going to school, can have an adverse effect on learning. Children who are hungry have more difficulty concentrating and performing tasks, even if they are well-nourished. Meeting the iron and iodine needs of school-age children can also lead to better school performance.

The child does not develop nutrition-related diseases or other nutrient deficiencies

Deficiencies of iron and iodine are among the most harmful types of under-nutrition with regards to cognition. Iron deficiency makes children extremely tired and they lack the energy to be alert and interested when learning. In the case of iodine, there is a difference in cognitive performance between children who live in communities with and without endemic goitre (an enlarged thyroid gland caused by poor amounts of dietary iodine). Children in goitre endemic communities lose 13% of IQ (intelligence quotient) points compared to those living in areas with sufficient iodine. Therefore, healthy eating ensures that children do not develop these nutrition-related diseases or nutrient deficiencies and leads to better school performance.

The child is healthy with infrequent sickness and can recover quickly when sick

The prevalence, severity and frequency of ill health due to infections depend on infant and young child feeding and caring practices, the nutritional status of the child, and environmental hygiene. A well-nourished body's ability to protect itself against infectious agents like bacteria, fungi and parasites is remarkably effective. Improving nutrition is regarded as a strategy for control of infectious diseases like cholera, malaria schistosomiasis, soil transmitted helminthiasis. Under nutrition is associated with impaired immune function followed by increased susceptibility to infections. Infections on the other hand worsen under nutrition and if this vicious cycle continues it can result in child death.

Healthy eating significantly reduces the incidence and severity of acute respiratory infections like common cold, cough, sore throat, as well as, malaria, measles, worm infections and the incidence of diarrhoeal disease in school-age children. Nutrition improvement should be widely adopted as a strategy for the control of infectious diseases, especially respiratory and diarrhoeal infections which are the major causes of ill health and death in young children.

The family saves money and time as they infrequently seek healthcare

The benefits of a healthy lifestyle contribute immensely to the reduction of a family's healthcare costs. By improving health a caregiver is making a down payment on lower healthcare costs in the future. Through healthy eating, money is saved on medication, school-age children are not frequently absent from school and the caregiver will not lose time from work due to the illnesses that occur from bad diets. Eating healthily will also improve a person's blood pressure, decrease the chances of illnesses such as diabetes and some cancers in the future, and will keep the family away from the doctor – a truly win-win system.

Appendix A: Summary of the Essential Steps for Healthy Eating in School-Age Children

The Three Principles of Healthy Eating

1. Meals should have a variety of nutrients to satisfy the body's needs and to enable it to function properly.
2. Meal portions should be enough for a person's age and their activity level.
3. Meals should be safe and free from germs.

Basic Healthy Eating Rules

- Eat meals prepared from a variety of the Go, Grow and Glow foods.
- Eat adequate quantities of food to meet your needs.
- Eat fresh fruits and vegetables with every meal.
- Eat legumes often.
- Use iodized salt and other fortified food products in food preparation.
- Use clean hands, safe food and clean utensils.
- Choose healthy snacks.
- Drink fluids regularly, especially potable water.
- Avoid salty, sugary, and fatty foods and drinks.

Basic Food Safety Practices

- Select wholesome foods and use safe water.
- Wash hands with soap and running water especially during five important times. Wash fresh fruits and vegetables thoroughly under running water before use.
- Cook food thoroughly and serve hot.
- Wash cooking and serving utensils with soap and running water before and after use.
- Keep food covered to prevent contamination.
- Choose ready to eat foods that are stored and served correctly.

Complementary Healthy Practices

- Maintaining good personal hygiene.
- Preventing worm infections.
- Preventing malaria.
- Living in a healthy environment.
- Regular physical activity and exercise.

Benefits of Health Eating

- The child grows well physically.
- The child attends school regularly and performs well at school.
- The child does not develop nutrition-related diseases or other nutrient deficiencies.
- The child is healthy with infrequent sickness and can recover quickly when sick.
- The family saves money and time as they infrequently seek healthcare.

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The Partnership for Child Development

School of Public Health
Imperial College London
Faculty of Medicine
Norfolk Place
London, W2 1PG

Tel: +44 (0) 207 594 1941
Email: pcd@imperial.ac.uk

www.hgsf-global.org
www.schoolsandhealth.org
www.imperial.ac.uk/pcd

The Ghana School Feeding Programme

P. O. Box 1627
State House, Accra
Ghana

Tel: +233 (0) 302 683 889
Email: info@schoolfeeding.gov.gh

www.schoolfeeding.gov.gh



**Imperial College
London**

