

Ghana:

National Food-Based
Dietary Guidelines - 2023





FOOD BASED DIETARY GUIDELINES

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In collaboration with University of Ghana
School of Public Health

Ghana

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Foreword by the Minister for Food and Agriculture

Food-Based Dietary Guidelines (FBDG) is an important tool for promoting healthy eating through increased access to evidence-informed nutrition and health information. It also serves as a guide to the policy framework to ensure nutrition targets are achieved.

Almost one hundred countries worldwide have developed FBDG; however only a few countries in Africa have developed FBDG. Although Ghana is not a pacesetter in the Africa region, it is emerging at this time, at the heels of the recent UN Food Systems Summit which took place last September 2022. The summit was preceded by dialogues in member states to heighten awareness on the need to collaborate across stakeholders in the food system, and to integrate action around global Goals and Development plans for overall planetary health and improved nutrition outcomes.

The Ministry of Food and Agriculture continues to facilitate increased food production and is mindful of nourishing the populace with consideration for addressing the current triple burden of malnutrition. Among the Ministry's key priorities are strategies to improve agricultural practices along the value chain, enhanced soil improvement, seed and planting material development, development of nutrient-dense crops, development of irrigation infrastructure to support all year-round cropping, value-addition (processing and preservation), and storage infrastructure for increased food availability. Additionally, nutrition education is emphasized as a strategy for the adoption of sustainable production and dietary practices, in collaboration with related Agencies.

The development of Ghana's FBDG was led by the Ministry of Food and Agriculture and the School of Public Health of the University of Ghana. A Multi-stakeholder Technical Task Team drawn from key partner institutions with technical support from the Food and Agriculture Organisation (FAO), World Food Programme (WFP), and the United Nations Children's Fund (UNICEF). Evidence-based approaches including diet-modelling and also implementation planning have all been cardinal. The FBDG have also taken into consideration the needs of all population groups along the life cycle above five years, as well as being sensitive to diverse cultures and the promotion of our local foods, and maintaining ecosystem balance.

The choice of a local utensil (i.e our mashing bowl for the image localizes the FBDG), with the relative proportions of the food groups makes it easy to follow the recommendations at a glance.



Hon. Dr. Owusu Afriyie Akoto
Minister for Food and Agriculture.

Acknowledgments

Ghana's First National Food-Based Dietary Guidelines were developed based on a thorough process of stakeholder engagement, needs assessment, prioritization, recommendation drafting, and validation. Altogether, these processes have taken almost 6 years. Multiple individuals from both government and non-government agencies have committed invaluable time and effort in this truly collaborative process.

The contributions and commitment of all stakeholders have been amazing and are recognized accordingly. Special appreciation is extended to the Food and Agriculture Organization for the excellent partnership, and financial and technical contribution to the FBDG process. The Dietary Transitions in African Cities (TACLED) Project funded by the UK-MRC/G-CRF and which was jointly implemented by the University of Ghana, and the University of Sheffield was stimulus for initiating Ghana's FBDG. The TACLED project generated useful evidence that formed the bedrock of the needs assessment especially those related to urban diets and food environment. UNICEF and WFP in Accra also contributed technical and financially to the FBDG development process as well as participating in the technical processes.

Special thanks goes to the FBDG Multi-stakeholder Technical Task Team (MTTT) which steered the affairs of the FBDGs development. The MTTT is listed below:

Akosua Kwakye (World Health Organization), **Amos Laar** (School of Public Health, University of Ghana), **Dorcus Hushie** (GES-School Health Education Programme), **Doreen Kufoalor** (International Food Policy Research Institute), **Esi Colecraft** (Nutrition and Food Science Department, University of Ghana), **Jevaise Aballo** and **Ruth Situma** (United Nations Children's Fund), **Joycelyn Smith** (Ministry of Finance), **Mark Kwame Offei** (Food and Agriculture Organization, Accra), **Mercy Aburam** (Ministry of Health) **Norbert Amuna** (University of Health and Allied Sciences), **Matilda Steiner-Asiedu** (Ghana Academy of Nutritionists and Dietitians), **Mary Glover-Amengor** and **Jolene Nyarko** (CSIR-Food Research Institute), **Mary Mpereh** (National Development Planning Commission), **Matilda Asante** (Ghana Academy of Nutrition and Dietetics), **Peter Aboagye** (Ministry of Food and Agriculture), **Percy Agyekum** (Food and Drugs Authority), **Reginald Annan** (Kwame Nkrumah University of Science and Technology), **Rose Omari** (CSIR-Science and Technology Policy Research Institute), **Seth Ofei** (Ghana School Feeding Programme), **Tani Aduko Bukari** (World Food Programme), **Veronica Quartey** and **Esi Amoafu** (Ghana Health Service), **Vitus Bobrnuo** (Ghana Statistical Service).

Overall coordination of the FBDG was by the MTTT co-chairs: **Paulina Addy** (Women in Agriculture and Development, Ministry of Food and Agriculture) and **Richmond Aryeetey** (University of Ghana School of Public Health).

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1.0: Background

Your diet consists of what you usually eat and/or drink, as well as how you consume these foods and beverages. Increasingly, existing evidence is showing that many of the diseases and health problems of modern societies have their origin in our diets. The modern diet is characterised by excessively high amounts of sugar, salt, and fat. Incidentally, most processed foods are industrially preserved using sugar, salt or fat. Because of the increasing access and consumption of processed foods, these ingredients are in almost all foods that we eat.

Scientific evidence has demonstrated that increased consumption of foods high in simple sugars, salt, and certain types of fats increases our risk for diet-related chronic diseases. On the other hand, there is also strong evidence that a careful planning of your diet to limit consumption of sugar, salt and fats, while increasing consumption of foods rich in diverse nutrients can contribute to improving your health and wellbeing, as well as reducing your chance of becoming ill with diseases of dietary origin.

To enable persons living in Ghana to choose and eat a diet that enhances health and wellbeing, a National Food-Based Dietary Guideline (FBDG) has developed by the government as a tool to support adoption of healthier lifestyles. By design, a FBDG is written in simple easy to read language so that the ordinary healthy person can use the FBDG. FBDGs usually provide general advice on what constitutes a healthy diet for healthy persons in the population. The FBDG is not designed to treat diseases nor to address malnutrition. Rather, it is a tool for promoting optimal eating and for preventing nutrition problems.



A FBDG is intended for use by the entire healthy population. To be trustworthy, and to increase the likelihood that they resolve in better nutrition and health, it must be based on the best available scientific evidence. The evidence that is typically used for developing FBDGs include usual eating habits of the population, food availability, food affordability, and the evidence linking dietary habits with human health and wellbeing. Beyond these, FBDGs also serve as a guide and planning tool for government-led food policies and programs such as the school feeding program, and cash grant programs for vulnerable households.

For the first time ever, Ghana has developed a truly Food-Based Dietary Guideline for the population in Ghana at ages five years and above. In the past, the government had developed guidelines for young child feeding, as well as tools used by program managers and extension officers supervising government programs. These earlier documents were highly technical and were not designed to be used by the general population. Thus, the current FBDG fills an important gap by enabling the general population to take responsibility for making informed choices about their own diets.

Ghana's new FBDG is timely, given the rapidly rising prevalence of obesity, diabetes, hypertension, and several other diet-related non-communicable diseases. This national FBDG will also be helpful to address misinformation on foods and diets created by quacks who promote unsubstantiated and often, inaccurate information and claims. Such misinformation, whether deliberate or otherwise will only continue to misinform the population when there is lack of access to credible and validated, government-approved guidance on healthy diets. At the policy level, the absence of national FBDGs limits consistency and about the links between certain food products and nutrition and health outcomes coherence across government-led food-based initiatives. Thus, the current FBDG will contribute to





2.0: Aim of the National Food-Based Dietary Guidelines

The National Food-Based Dietary Guidelines for Ghana has been developed to promote optimal diets, and address malnutrition and diet-related diseases. Ultimately, the guidelines aim to contribute to the control of the epidemic of increasing non-communicable diseases and its adverse outcomes among persons living in Ghana.

The recommendations in the FBDG will be disseminated and implemented to increase access to, utilization of evidence-informed health-promoting dietary information, and demand for consumption of healthier diets. It is also intended to create an enabling environment for individuals and families to consume healthy diets by removing known barriers to healthier eating in food environments.

Further, the FBDG is intended to strengthen the capacity of government and its development partners to improve access to healthy diets, and to promote and ensure safety in handling and use of food in the Ghanaian food system.



Key terminologies to remember

Biofortification	This is a process for generating food crops that provides higher quantities of desired nutrients to consumers, using selective breeding, genetic methods, or enriched fertilizers.
Diet	What we usually eat/drink, as well as our usual food habits.
Healthy diet	A healthy diet consists of the amount and type of food that is consumed, habitually, that provides nutrients with helps to protect against malnutrition in all its forms, as well as non-communicable diseases
Diverse diet	A diverse diet includes multiple food groups selected as part of meals and snacks.
Food	Substances that contain nutrients and energy that is consumed for the benefit of the human body's physiology and performance.
Food Systems	Food system refers to the complex and interconnected processes and activities between food production and consumption. The System includes processes and activities involving production, processing, transport, retail of food and also consumption and disposal of food.
Meal	A meal is an eating occasion that takes place at a specific time and includes consumption of food.
Snack	A small portion (usually) of food that is typically eaten in between meals.
Recipe	A recipe is a set of instructions that describes how to prepare or make something, especially a dish of prepared food.
Recommendation	In this food-based dietary guideline, a recommendation is a proposed best course of action intended to enable people to choose a healthy diet.
Guideline	A guideline is a document outlining the recommendations.
Calories	Calories are the amount of dietary energy released after procbreaking down food into its nutrient components.
Nutrients	Nutrients are components of food that are used by human body for growth, survival and growth (for children).
Malnutrition	An abnormal physiological condition caused by deficiencies, excesses or imbalances in energy and/or nutrients necessary for an active, healthy life.

Who is the Food-Based Dietary Guidelines for?

Ghana's Food-Based Dietary Guidelines is designed for all healthy persons living in Ghana who are five years or older. It is designed to complement existing guidelines for feeding young children including the 4-star diet promoted by the Ghana Health Service, the National Strategy Document for infant and young child feeding (Ghana Health Service, 2007), and the Nutrition facts for Ghanaian families (Ghana Health Service & United Nations Children's Fund, 2009).

The national FBDG for Ghana is also to provide guidance to persons at higher risk of malnutrition in all its forms. In particular, women in the reproductive age (between 15 and 49 years), and infants and young children (below 5 years) have a greater risk of nutrient deficiencies. However, the Food-Based Dietary Guidelines does not include recommendations for children below 5 years. Recommendations for this age-group will be developed subsequently.



3.0: Guiding Principles of the National Food-Based Dietary Guidelines

The development of the FBDG have been guided by eight core principles. These principles spell out the underlying conditions under which the FBDG will be meaningful:

Diet diversity: A healthy diet should be based on locally-produced or locally-sourced foods from plant and animal origins. Promotion, production, and consumption of diverse nutrient-dense foods that are locally available are critical for achieving a healthy diet. Promoting local foods is intuitive and easier to understand by the general public. Promotion of foods rather than nutrients should be prioritized.

Production diversity: There should be recognition of the importance of nutrition-sensitivity in food systems and food value-chains. Promoting and supporting the production of a wide variety of foods increases the availability and accessibility of such foods for consumption.

Market access to healthy food: Availability of healthy food in the market place is important for accessing them for nutritious foods. Notably, access and affordability of micronutrient-rich leafy and other vegetables, beans, seeds, diverse whole grains, nuts, and fruits are critical to healthy diets. On the other hand, limiting access to unhealthy processed foods in the market place promotes adherence to optimal diets.

Enhanced value chains: Deliberate actions across entire food value chains (production, storage, processing and preservation, distribution, promotion and consumption) are necessary to ensure optimal diets. Also important is the need to minimize food losses and wastage, and maximize benefits from seasonal foods.

Capacity strengthening: Implementation of the recommendations in the FBDG requires optimal technical capacity and leadership at all levels (individual, community and institutional levels) to ensure healthy diets. There is need for funding, job aids and training community-based agencies on good agricultural and dietary practices, including strengthening capacity to stimulate producing, processing, marketing, preparing and consuming nutritious foods.

Evidence: The recommendations have been based on the best available scientific evidence including global and local evidence of foods, diets, and socio-environmental influences.

Practicality: The recommendations aim at providing practical guidance to the general population, as well as a practical guide for policy and programs implemented by government and non-government actors.

Sustainability: The recommendations recognize the importance of environmental sustainability. Thus, the recommendations are designed so that consumption of healthy diets ensure planetary sustainability while limiting adverse impacts that affect future generations. The recommendations focus on promoting diets that are produced, distributed, marketed, retailed, and consumed in a way that exert minimum impact on the environment.



What should be the dietary goals of healthy people living in Ghana?

The dietary goals for people living in Ghana have been established based on evidence of the dietary behavior of the Ghanaian, as well as the nutrition and health situation across the life cycle. The goal of dietary interventions is to improve dietary intake (both quality and quantity) as well as limit the risk of malnutrition. A summary of the dietary and nutrition situation in Ghana is provided here:

High burden of Micronutrient malnutrition

The 2017 Micronutrient Survey reported that one out of five Ghanaian children under 5 years are deficient in vitamin A and Iron. Also, one-third of young children are anemic. Anemia is also prevalent among women in reproductive age, ranging from 22% among non-pregnant women to 45% among pregnant women. More than half of non-pregnant reproductive-age women are deficient in folate, and about 7% are deficient in vitamin B-12.

Too many young children are not growing as they should

In the past decade, significant improvement in child growth has been observed. Nevertheless, stunting among young children remains unacceptably high in Ghana; one out of every five children is stunted (too short for their age). Further, almost one out of every ten are wasted (too thin for their height). Children living in rural areas and in low-income households are more likely to be too short for their age. Among adolescents in school, almost two out of every five are either overweight or obese

Increasing consumption of energy-dense nutrient-poor foods

Diets of Ghanaians are changing rapidly; there is increasing availability of dietary calories. An analysis of food production and utilization data by the FAO shows that dietary calories available to each Ghanaian has increased from 1,800 Calories in 1984 to 3,000 Calories in 2010.

Similarly, dietary protein availability has increased from less than 40g per person per year, to about 60 grams over the same period. In urban areas, fish and seafood as well as chicken provided the largest share of animal source food consumption between 2005 and 2013, with barely no change in pattern over time. Rural households had relatively less availability of animal source foods. Cereals and tubers remain the main staple foods; rice and cassava are the most dominant staple foods.

A recent survey of two cities in Ghana reported that almost one-third of respondents consume unhealthy foods and beverages (particularly, energy-dense foods, sweetened beverages, and fried foods). Only half of respondents reported consumption of fruits and vegetables. Animal-source food consumption was reported by two-thirds of respondents. Fat and oil consumption was high and close to the upper limit of global standards. Eating habits data show that meals are eaten quickly (usually within 30 minutes, and often alone).

Standardization of dietary messages

There are common misperceptions about what constitutes a healthy diet. This is partly because until this document was developed there was no government-approved dietary guidelines for Ghana.

Increasing burden on diet-related Non-Communicable Diseases

These changing diets and lifestyles around food is shifting consumption practices towards energy-dense foods and eating behaviours linked with chronic diseases.

Based on the above, the following were prioritized as dietary and nutrition goals for Ghanaians:

Promote

optimal dietary energy consumption.

Promote

adequate micronutrient intake from diets.

Increase

access to diverse foods.

Limit

consumption of unhealthy foods, particularly fried foods and sugar-sweetened beverages.

Reduce

micronutrient-deficiency disorders, particularly among young children, and women of reproductive age.

Reduce

the prevalence of stunting and wasting among young children.



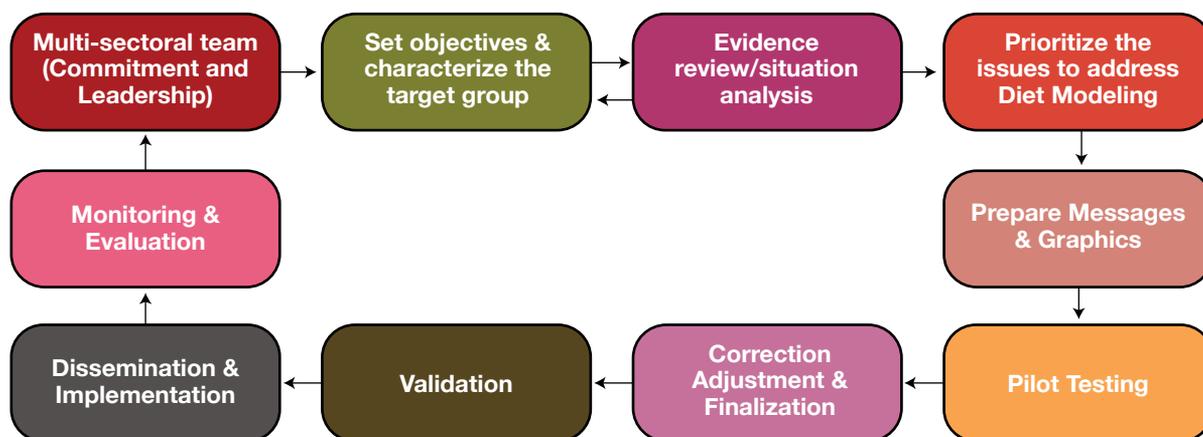
4.0: Procedures used in the development of the Food-Based Dietary Guidelines

The development of Ghana’s FBDG followed international best practices as recommended by the FAO and WHO (See figure 1.0). In 2016, a delegation from Ghana attended an FAO workshop on FBDGs, in South Africa, where a commitment was made to develop FBDGs for Ghana. In the same year, the Ghana Health Service published the National Nutrition Policy, which also indicated the government’s interest in developing dietary guidelines for the population. Thereafter, in 2017, the University of Ghana’s School of Public Health and its partners initiated a research project (TACLED) that prioritized FBDG development as a deliverable. The TACLED project conducted research on the evidence needed as part of the situational analysis phase of the FBDG development. With support from TACLED, the Ministry of Food and Agriculture convened selected key stakeholders from across government and non-government partner institutions, to initiate the development of FBDG in Ghana.

During this process, a concept note for the FBDG was prepared. Also a national Multi-sectoral Technical Task Team (MTTT) was established, and the MTTT commenced meetings to implement activities in the FBDG development concept note.

In 2018, the MTTT reached out to the FAO for technical and financial support for the FBDG development. In 2019, the FAO responded by organizing a capacity building workshop for Ghana’s MTTT members. This workshop focused on the preparations for implementing a FBDG, particularly, the process of evidence review. Thereafter, the FAO provided funding and technical assistance to support the work of the Ghana MTTT. Subsequently, the membership of the MTTT was expanded to support the evidence review work in 2020. Ten questions were identified for evidence review, and the findings were utilized for developing the key messages in the FBDG technical recommendations. The messages were then pre-tested in selected communities across all the three ecological zones, nationwide. The findings of the pretesting were used to revise the recommendations and then the recommendations were validated in stakeholder meetings.

Figure 1.0: Process for developing Ghana’s Food-Based Dietary Guidelines



5.0: Food Groups

There are six food groups identified as part of a healthy diet in the Ghanaian Food-Based Dietary Guidelines. These include **fruits**, **vegetables**, **legumes and nuts**, **animal source foods**, **whole/unpolished grains/cereals**, and **tubers**, and **healthy fats, oils, and oily seeds**. Recognizing that Ghanaians consume a variety of unhealthy discretionary foods that are high in sugar, fat and salt, we have included guidance on this group of foods as well.

Food Group

Common foods in the food group

	Fruits	<p>Orange, Lemon, Tangerine, Banana, Pineapple, Carambola, 'Alasa', 'Atoa', Sour sop, Sweet sop, Velvet Beans, Tamarind, Tamarind pawpaw, Apple, Avocado pear, Mango, Pear, Guava, Watermelon, Cashew, Baobab, Shea fruit, Miracle berry, Passion fruit, etc. Mango, Baobab fruit, and food products made from these.</p>
	Vegetables	<p>Tomato, Pepper, Bell pepper, Onion, variety of Leafy vegetables (including <i>ayoyo</i>, <i>Kontomire</i>, <i>Ademe</i>, <i>Bra</i>, <i>Cabbages</i>, <i>Lettuce</i>, etc), Carrot, Garden egg, Aubergine, Okro, Squash and food products made from these.</p>
	Legumes, pulses and nuts	<p>Includes Cowpea, Ground nut, Bambara beans, Velvet beans, Locust beans, Soyabean, White melon seeds (agushi), Lentils, other beans; Cashew nut, Almonds, and food products made from these.</p>
	Animal source foods	<p>Fish, Chicken, Guinea fowl, egg, Beef, Pork, Chevon, Mutton, Offals, Shrimp, Snail, Crab, Octopus, Milk, Snails and food products made from these.</p>
	Healthy fats, oils, oil seeds	<p>Coconut, Palm nut (oil), Palm kernel oil, Tiger nut, Cashew nut, Sunflower seed, Flaxseed, and food products made from these.</p>
	Whole/unpolished grains/cereals, tubers	<p>Tubers such as Cassava, Yam, Cocoyam, Plantains; Cereals such as Maize, Millet, Sorghum, Rice, and food products made from these.</p>
	Discretionary foods	<p>Includes Sugar sweetened beverages, Ice cream, Cakes, Biscuits, Pizza, Doughnut, and other similar foods.</p>





6.0: Summary of the Food-Based Recommendations

There are seven core recommended behaviors regarding which foods and food groups should be included in the diet of the general population from ages five and above. Adherence to these recommendations will contribute to a healthy diet (Table 1.0). In addition, there are six complementary recommendations for improving nutrition and wellness. These recommendations are designed for use by the general population as well as professionals who interact with and support the general population, to make good dietary choices.

This FBDG will be accompanied by additional guidance on food system recommendations that create an enabling environment for accessing and consuming a healthy diet. These recommendations are targeted at community leaders, institutions, and regulators. They will form the basis for driving an enabling environment for healthy and sustainable diets.

Table 1.0: Overview of the Food-Based Dietary Guideline recommendations

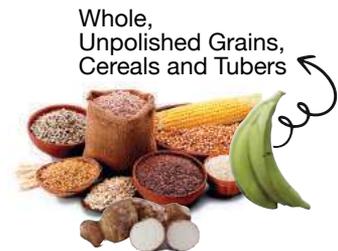
Core Recommendations	Complementary recommendations
<ul style="list-style-type: none"> • Eat a diverse and varied diet from the six food groups everyday 	<ul style="list-style-type: none"> • Eat less frequently, foods and ingredients that are high in sugar, fat, and salt.
<ul style="list-style-type: none"> • Eat a variety of fruits everyday 	<ul style="list-style-type: none"> • Be physically active
<ul style="list-style-type: none"> • Eat a variety of vegetables everyday 	<ul style="list-style-type: none"> • Read food Labels and Nutrition Information
<ul style="list-style-type: none"> • Eat a variety of legumes, pulses, and nuts everyday 	<ul style="list-style-type: none"> • Keep food safely and eat safe food
<ul style="list-style-type: none"> • Eat a variety of animal-source foods everyday 	<ul style="list-style-type: none"> • Drink water regularly
<ul style="list-style-type: none"> • Use healthy fats, oils and oily seeds in moderation 	<ul style="list-style-type: none"> • Limit alcohol intake
<ul style="list-style-type: none"> • Eat a variety of whole/unpolished grains, cereals, and tubers everyday 	

Recommendation 1

Eat a diverse and varied diet from the six food groups every day

Key message: Include foods from at least four of the six food groups in every meal/snack.

The Six Food Groups



Choose a variety of foods from each food group, regularly. Within each food group, there are different types of foods to choose from. For example, there are a variety of fruits. Although all fruits are beneficial in providing essential vitamins and nutrients, some fruits are better at providing some nutrients than others. For example, oranges and other citrus fruits are known for their rich stores of Vitamin C. Even among the citrus fruits, there is variety in their supply of vitamin C. The recommendation is to ensure variety in the foods you eat across all meals and snacks. Aim for variety in the type of dishes (meals) and snacks eaten each day. Practically, this means, eat different types of dishes from one meal to the next. An important aspect of this recommendation is to prioritise and increase consumption of fruits, vegetables, legumes and pulses, and whole grains as part of a varied diet. Food from a combination of these food groups provide a rich source of essential nutrients needed for health and wellbeing.

What enabling environment is necessary for the recommendation on diverse diets to be implementable?

The recommended foods should be available and affordable. Their consumption should be promoted as part of national and local policy, and as a cultural norm for all persons living in Ghana. Adoption of these recommendations will be enhanced when they are mainstreamed into policies and programs of government and non-government institutions. Policies and programs related to school meals, cash grants, institutional food services such as work places, hospitality, health service, and prisons, should promote and ensure diversity and variety in daily food supply for all persons aged 5 and above, living in Ghana.



EVERYDAY

Eat a diverse and varied diet from the six food groups every day

Include foods from at least four of the six food groups in every meal/snack.

The six food groups are:

- Fruits
 - Vegetables
 - Legumes, pulses and nuts
 - Animal-source foods
 - Healthy fats, oils, and oily seeds,
 - Whole/unpolished grains/cereals, and tubers
- Choose a variety of foods from each food group regularly. Within each food group, there are different types of foods to choose from.
 - Ensure variety in the foods you eat across all meals and snacks. Aim for variety in the type of meals and snacks each day.
 - Increase consumption of fruits, vegetables, legumes and pulses, and whole grains as part of a varied diet.

Recommendation 2:

Eat a variety of fruits every day

Key message: Generally, Ghanaians do not eat fruits as frequently as needed; the little that is eaten is not sufficient to meet needs for health and wellbeing. Increased eating of fruits in season is recommended for all persons living in Ghana. Eat at least two servings of a variety of fruits in season, every day.

How much to eat:

- A serving of peeled pineapple is equivalent to the size of one sardine can + half
- A serving of ripe peeled banana is equivalent to one medium-sized finger of banana
- A serving of peeled orange is equivalent to one medium sized orange

(See page 38 for details on amounts of different types of fruits to eat in a day)

Which fruits to eat: Eat a variety of fruits that come in different colors. The colors of fruits give a clue about the nutrients in them. Brightly colored fruits, especially yellow and orange colored fruits are often a good source of vitamin A. Eating a variety of fruits of diverse colors takes away the need to consider which nutrients are in the foods.

When to eat: It is important to eat fruits daily and regularly, either as part of a meal or separately as a snack; fruits may be eaten at home or out of home. What is important is to eat them daily and regularly.

How to handle: Ensure that fruits are washed carefully before eating them. Fruits must be washed thoroughly with clean water.

How to eat: Prioritize eating diverse fresh fruits when they are in season. When not in season, fruits may be available in processed form. In the absence of fresh fruits, processed fruits can be a useful substitute, as long as they are not overprocessed or their processing does not add harmful additives including excessive amounts of sugar. Processed fruits may be dried, canned, juiced, or frozen. Prioritize eating of whole fruits over fruit juices or other processed fruit products. If juice is made from fruits, it should be consumed together with the pulp. When buying fruit juice, choose, 100% fruit juice, Limit consumption of fruit juices with added sugar, especially when giving to young children and school-age children.



EVERYDAY

Eat a variety of fruits





Recommendation 3

Eat a variety of vegetables everyday

Key message: Consumption of vegetables falls below the expected recommendations for health and wellbeing. The recommendation is to eat a variety of vegetables. This recommendation is for all persons living in Ghana.

How much to eat: Eat at least five servings of a variety of vegetables, daily.

- A serving of boiled kontomire is equivalent to the volume of one soup ladle (level)
- A serving of boiled garden eggs is equivalent to the volume of two empty 70g tomato paste cans (level)
- A serving of boiled cut up carrots is equivalent to the volume three small-sized tomato paste cans (level)

(See page 39 for details on servings of different types of vegetables)

Which to eat: Eat a variety of vegetables as part of your diet. Especially, eating of green leafy vegetables and brightly coloured vegetables is recommended.

When to eat: Vegetables may be eaten daily as part of every dish. A variety of vegetables should be eaten regularly as part of a healthy diet.

How to eat: Vegetables may either be eaten fresh or cooked as part of a dish. Vegetable salads may be eaten along with a healthy oil-based dressing to facilitate absorption of fat-soluble vitamins. When choosing salad dressing, pay attention to the amount of calories and salt added to the salad dressing. When preparing vegetable dishes, vegetables should be included towards the end of the cooking process, so that they are not overcooked and therefore the vegetables retains most of its nutrients.

How to handle: Wash salad vegetables thoroughly under clean potable running water to remove all dirt before use. Salad vegetables may be washed with 10% salt solution or water with lemon juice added.



EVERYDAY

Eat a variety of vegetables



Recommendation 4:

Eat a variety of legumes, pulses and nuts everyday

Eat a variety of beans, nuts and legume seeds every day as part of a healthy diet

Key message: Eat a variety of beans, nuts and legume seeds everyday as part of a healthy diet. Beans, nuts and legumes are an important source of protein and nutrients from plant foods. Food from this group is a particularly important substitute for animal protein, since they are cheaper than animal source for protein and micronutrients. The recommendation is to increase the eating of beans, nuts, and legume seeds as part of a healthy daily diet.

How much to eat: Eat at least two and half servings of a variety of beans, nuts, and legumes each day

- A serving of boiled beans is equivalent to the volume of one small- sized tomato paste can plus half
- A serving of boiled agushie is equivalent to the volume of one small- sized tomato paste can plus half
- A serving of roasted groundnut is equivalent to the volume of one small-sized tomato paste can

(See page 40 for details on servings of different types of beans, nuts and legumes)

When to eat: Beans, nuts, and legumes may be eaten as part of any dish or as the main dish. A variety of beans, legumes and nuts should be eaten daily and regularly as part of a healthy diet.

Which to eat: Eat a variety beans, nuts and legumes as part of your daily meals. Beans and nuts are especially useful as a substitute for animal source foods to provide protein, and micronutrients. Beans and nuts are used in salads and soups and stews.

How to handle: Uncooked beans, legumes and nuts should be stored in a cool dry place to avoid it becoming moldy. Soak, dehull, or germinate beans, and roast nuts to improve their nutritional benefits. Prepare legume meals/dishes with ginger and/or turmeric, where appropriate, to reduce bloating, cramps or passing gas associated with infrequent consumption. Soaking and throwing away the soaking water and slowly cooking the legumes reduces the compounds responsible for these discomforts. Cook legumes thoroughly before eating to prevent diarrhea or other digestive discomfort.



EVERYDAY

Eat a variety of legumes, pulses and nuts



Recommendation 5

Eat a variety of animal-source foods everyday



Key message: Eat a variety of animal-source foods as part of a healthy diet. Animal-source foods are an excellent source of essential micronutrients (including vitamins and minerals). However, animal-source foods are consumed infrequently; and often only in small amounts, due to their low affordability for most households. The recommendation is to eat a variety of animal source foods as part of a health diet. Prioritize and increase eating of fish, especially oily fish from the sea, because of its rich nutrient profile, to protect against cardiovascular diseases, compared to other animal-source foods.

How much to eat: Eat one and half servings of a variety of animal source foods each day.

- A serving of boiled chicken is the equivalent of the size of three + half empty match boxes
- Two medium-sized boiled eggs constitute a serving
- A serving of smoked fish is equivalent to the size of two small-sized tomato paste cans
- A serving of evaporated milk is equivalent to the volume of one small-sized tomato paste can + half

(See page 41 for details on servings of different types of animal source foods)

Which to eat: Animal-source foods (apart from marine fish) contain saturated fats which are linked with heart diseases and other chronic diseases. For meats and poultry, choose lean meat cuts, and limit eating fatty meat. Limit intake of offals (especially intestines) and skins (particularly of pork, chicken). Limit intakes of processed meats (e.g. frankfurters, sausages, canned, minced meat, corned meat). Prioritize grilled, boiled, or steamed animal foods over fried or smoked ones.

How to handle: Remove all visible fat and/or skin from meat before eating, or using for meal preparation. Limit eating of animal source foods that have been preserved with additives (eg salt, oil, and chemicals that makes meat have red/pink color, etc). Cook animal source foods thoroughly to destroy any disease-causing pathogens. Larger fish species tend to accumulate heavy metals, particularly mercury which can have adverse health effects, especially for pregnant mothers and their prioritize smaller fish types.



EVERYDAY

Eat a variety of animal foods



Recommendation 6:

Use healthy fats, oils and oily seeds in moderation

Key message: Fats and oils are linked with increased risk of accumulating body fat as well as cardiovascular diseases. The recommendation is to use fats, oils, and oily seeds in moderation, as part of a healthy diet

How much to eat: Use one serving of healthy oils each day

A serving of vegetable cooking oil is equivalent to one tablespoon or one eating spoon plus half

(See page 42 for details on servings of different types of health fats and oils)

How to use: Prioritize oils that are liquid, over those that are solid or semi-solid at room temperature. Limit eating fats that are solid at room temperature. Such fats are likely to be saturated and associated with adverse health outcomes. Oils prepared from legumes, pulses, and some nuts and oily seeds (eg. oils made from soybean, and groundnut) have high amounts of heart-protective nutrients and should be prioritized.

Increase consumption of tree nuts and seeds that are rich in healthy fats such as cashew nut, baobab seeds, white melon seeds (agushi), musk melon, etc. Reduce fat and high-fat foods consumption as a proportion of total amount of food in a healthy diet. Prioritize eating of low-fat food such as low-fat milk, yoghurt, and other low-fat dairy products.

Limit eating foods such as fried foods, baked snacks, etc which are high in oils/fats. Limit eating foods that contain Trans fats. Read labels on pre-packaged foods in order to identify and select foods that have less than 1% Trans fats. Examples of foods with high trans-fat are some margarines, doughnuts, cakes, muffins, potato chips non-dairy creamer, frozen pizza, biscuits, fried foods, etc

Limit deep frying of foods; whenever possible, choose other cooking methods like boiling, baking, grilling and smoking, over frying of foods. When cooking with oil, avoid repeated re-using of cooking oils, especially, unsaturated cooking oils, which can lead to the formation of Trans fats as part of the cooking process. Skim off fats or oils from stews and soups after cooking and before serving.



REDUCE

Use healthy fats, oils and oily seeds in moderation



Recommendation 7

Eat a variety of whole/unpolished grains, cereals, and tubers everyday

Eat a variety of staple foods every day as part of a healthy diet

Key message: Whole grains and cereals that have not been highly processed maintain their rich nutrients, unlike highly polished grains. The key recommendation is to eat a variety of whole or unpolished grains, daily as part of a healthy diet. Whole grains and cereals and their products are linked with reduced risk of heart diseases, type 2 diabetes, and some cancers.

It is also recommended to increase eating of a variety of coloured roots and tubers such as orange-fleshed sweet potato, yellow cassava, purple yam, cocoyam over. White roots and tubers are most commonly eaten. However, eating the colored roots have the advantage of providing health-protecting nutrients beyond what the white tuber varieties provide.

Different types of cereals, grains and tubers provide unique nutritional benefits. Therefore, eating a variety of foods from this food group has additional benefits for health and wellbeing.

How much to eat: Eat four servings of a variety of whole grain and/or colored tubers and plantain each day

- A serving of boiled yam is equivalent to the size of one sardine can
- A serving of boiled unripe plantain is equivalent to one and half fingers of normal-sized apem
- A serving of cassava fufu is equivalent to one medium-sized orange
- A serving of boiled rice is equivalent to four heaped table spoons

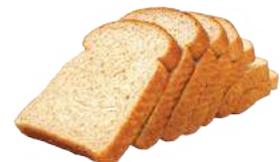
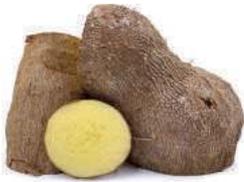
(See page 43-44 for details on servings of different types of whole grain and tubers)

How to eat: Prioritize parboiled or unpolished rice over polished white rice. Prioritize whole grain flour products (e.g. bran bread) over refined flour products (e.g. white bread). Since the use of whole grain cereals are currently not the predominant way for cooking and baking, consider gradually swapping some portion of the refined flour or cereals with unrefined or whole grain in cooking and baking recipes until it becomes easily acceptable.



EVERYDAY

Eat a variety of whole/unpolished grains
cereals and tubers.



Key message: High and frequent use and eating of salt, sugar and fat is linked with increased risk of diet-related diseases. Salt contains sodium which when used in high amounts in the diet, contributes to increased blood pressure and increased chance of heart and kidney diseases. The same effect occurs when highly salted foods are eaten frequently (eg salted tilapia). Sugar occurs naturally in many plant foods. Simple sugars give fruits and other foods their sweet taste. Frequent eating of simple sugar (in the form of table sugar, sugar sweetened drinks, and sweet baked/fried snacks) is harmful to health and wellbeing. Frequent eating of fatty foods (in the form of deep-fried and high baked foods that use much oil and fat) can increase the risk of diet related diseases.

The recommendation is to limit use of salt, sugar, and fat in every-day diet as well as in commercial food preparation. Deliberate effort to add less, or when possible, eliminate sugar and salt from recipes can be useful for reducing consumption of sugar and salt. Ideally, it is helpful to limit foods that contain a lot of added sugars in the diet. For all age groups and especially for children and adolescents, limiting intake of sweetened drinks, sweets, and table sugar is recommended.

How much to eat: Daily amount of table sugar added to drinks, and other foods (sweet snacks, cereals, porridges) should not exceed four table spoons (about 50 grams) for a person each day. Daily amount of salt added to foods and snacks should not exceed one teaspoon (about 5 grams) for a person each day.

How to eat: The amount of salt eaten can be reduced by avoiding to add salt to your food while eating. Salt is an ingredient in almost all processed foods, and food ingredients including packaged fish/meat, vegetables, legumes, seasoning (bouillon) and many other ready to eat foods. Limiting use and eating of packaged foods is one way to limit too much eating of salt. Another way is to limit the use of salted seasoning as flavouring when cooking. The amount of added salt can be reduced when preparing food or cooking. It is best to add salt towards the end of preparing food or cooking, if at all necessary to add salt. This reduces the risk of adding too much salt early on when the food has not been tasted to determine salt content. Use iodized salt in all cooking and food preparation. Further, choose packaged foods and snacks that have been prepared using iodized salt.



REDUCE

Eat less frequently, foods and ingredients that are high in sugar, fat and salt



Recommendation 9

Be physically active

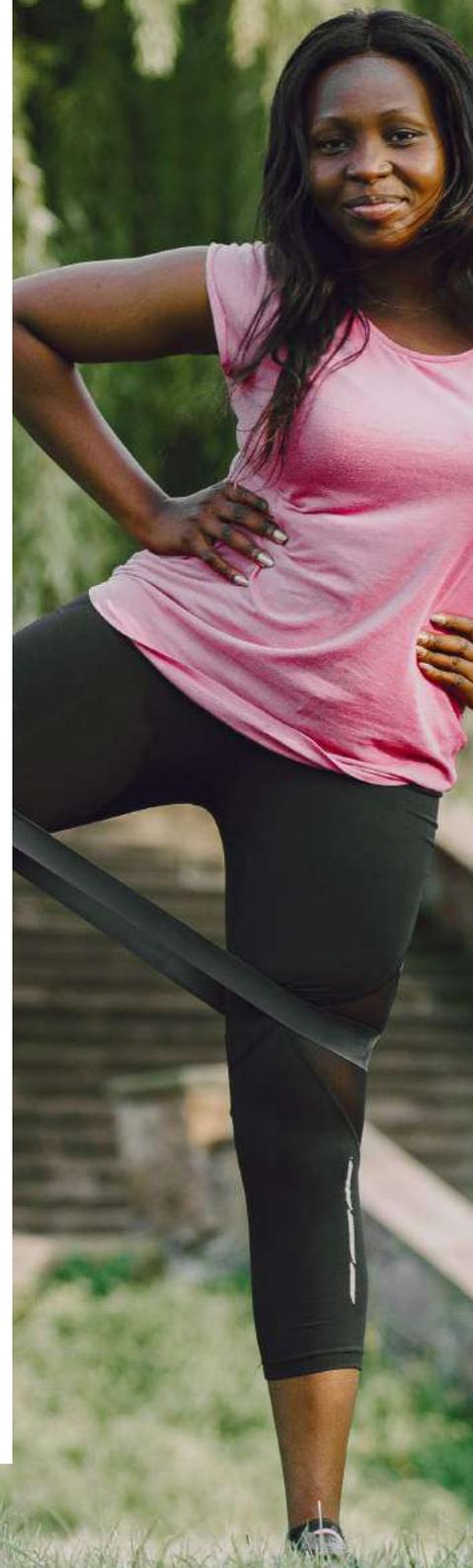
Increase physical activity in all aspects of daily living for health

Key message: Physical inactivity is a situation where a person rarely or does not engage in a sufficiently active lifestyle that involves movement of the human body. Physical inactivity increases the risk for several types of illness and also robs people of a well-functioning body, even if the person is not sick. Living a physically active lifestyle involves incorporating moderate or vigorous activities as part of work, transport, daily routines, and play (exercise). Physically active persons have a reduced risk of illness and a better experience of wellbeing. A physically active lifestyle is recommended for all age groups. The benefit of physical activity increases with duration and intensity of the activity. Therefore, doing some activity is better than none. Even more benefit is obtained beyond minimum recommended duration. However, it is advisable to start with low duration low intensity activity and build up gradually on duration and intensity. For all age groups, spending less time watching television, using phones, tablets, computers and driving is recommended.

How to be active

Adults and elderly: All adults should engage in moderate intensity aerobic physical activity for at least 30 minutes each day on most days (at least five days of the week). The goal should be to attain between 150 and 300 minutes of moderate intensity activity or 75-150 minutes of vigorous intensity physical activity each week. Examples of moderate intensity aerobic activity include brisk walking, heavy cleaning such as mopping, bicycling using light effort, recreational playing (eg Badminton, Tennis doubles). Adults should also engage in muscle strengthening activities that involve all muscles on two or more days a week.

Children and adolescents: Children and adolescents should engage in at least one hour of moderate-to-vigorous intensity aerobic physical activity for every day of the week. Examples of vigorous intensity activities include Jogging, Shovelling, bicycling fast, Basketball game, ampe, dancing, football game, tennis singles, hopscotch (tumatu), running, etc. Children should also engage in vigorous intensity aerobic physical activity at least 3 days in a week. To promote physical activity, children should not be restrained from engaging in physical activity.





EVERYDAY

Be physically active



Always read labels on all pre-packaged foods before purchase and consumption.

Key message: Food labels communicate important information on the contents of packaged foods. Manufacturers include information required by law on the label, including date of manufacture, ingredients, and dates after which the product's safety may not be guaranteed. They may also include claims about the characteristics of the product, as a marketing tool. Therefore, it is recommended that before purchasing or using a pre-packaged food product, the label should be read carefully to know what is in the package. Always read labels on all pre-packaged foods before purchase and consumption. Careful reading of the label enables and empowers the user to make an informed choice about the product.

How to read labels Guidelines to make informed decision on food label

Below are key guidelines to help in making an informed decision about pre-packaged foods:

- Select packaged foods that have low calories (ie not more than 40 Calories) in each serving
- Select packaged foods that have low fats (ie not more than 3 grams), saturated fats and trans fats (not more than 1% of Calories), in each serving
- Select packaged foods that are wholesome and not beyond the expiry date
- Select packaged foods that have low simple sugars or added sugar (ie not more than 5 grams), in each serving
- Select packaged foods that have low salt (ie not more than 0.1 grams) in each serving

Seek help when needed to understand the label information. Seek help, when needed, to understand serving size information; if you cannot read. Select foods whose labels are either in a local language you can read and understand or in English.





ALWAYS

Read food labels and nutrition information



Key message: Food that is exposed to contaminants in the environment is a source of food-borne illness such as diarrhea, vomiting, bloody stools, etc. Contamination of hands, water, and utensils can be a means for food contamination and illness. It is recommended to always keep hands, utensils, and surfaces clean. Key actions to ensure food safety include:

- Washing hands using soap and running water, after using the toilet or cleaning a child's toilet
- Keep cooking areas and food free of insects, pests and rodents
- Separate raw from cooked food; use different knives and cutting boards for handling raw food
- Store foods in separate and covered containers to avoid contamination
- Cook food thoroughly to ensure they reach a temperature of 70 degrees Celsius or higher;

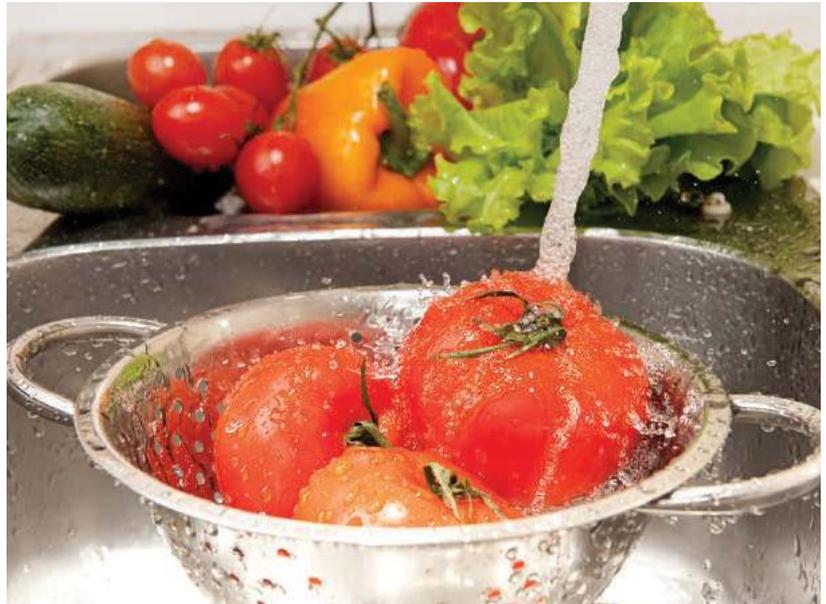
Always read labels on all pre-packaged foods before purchase and consumption. Sometimes, food is stored for eating later. To eat such food, it is important to reheat the food thoroughly before eating. It is important to store food to be eaten at appropriate temperature, either above 70 degrees Celsius or below 5 degrees Celsius (by refrigeration). Sometimes, prepared food or food ingredients are stored in for a long period in a freezer, below zero degrees Celsius. Before such food is eaten, it must be thawed and re-heated to an appropriate temperature to enable the food taste as desired. Frozen food should not be thawed by leaving it out at room temperature; the recommended procedure is to thaw it in a refrigerator or other cool environments.

Key actions for storing food in freezer: Before freezing, cool the food. Food to be frozen should be kept in air and vapor resistant containers such as bottles, hard plastic or plastic that can be completely sealed (like Zip top plastic bags). Raw food should not be stored above cooked ones. Store food in small portions based on quantities needed to be used. Avoid overcrowding of refrigerators or freezers. Also avoid opening the doors of freezers too frequently and/or leaving the doors open for long periods. Finally, Serve hot food hot and cold food cold.

Using safe clean water for drinking, cooking and washing food and utensils is recommended. Potable water sources include bottled water, sachet water, tap water, protected dug well, protected spring, and rain water. Avoid using sources of water that is contaminated by activities of people and animals, including surface water (eg. river, stream, unprotected well, etc).

Do not use pre-packaged food beyond its expiry or "best before" date. You can determine risk of contamination by carefully examining the expiration date on the product label. Avoid eating or serving food that has obvious signs of spoilage, especially when the food has signs of air bubbles, foul smell, change in colour, sliminess, mould growth, and leaking (for packaged foods).





ALWAYS

Keep food safely and eat safe food





Recommendation 12

Drink water regularly

Water is important for human health. It is an essential nutrient needed for almost all the body's functions. Water also hydrate the body and quenches thirst.

Key message: It is recommended to increase drinking of clean safe water. Drink at least eight cups or glasses of water in a day (equivalent to four sachets). If other beverages are chosen, apart from water, they should be those that do not contain added sugar.

There is a trend towards increased promotion and consumption of energy drinks, and sugar-sweetened and flavoured beverages. This trend is displacing water as a means of hydration and contributing to excessive calorie consumption, linked with overweight, obesity and diet-related diseases. It is recommended to limit drinking of sugar-sweetened beverages. Water is recommended for quenching the thirst. Drink beverages with no or low amount of added sugar.



REGULARLY

Drink water





Key message: It is recommended that individuals should limit drinking of alcoholic beverages. Further, it is especially important to avoid alcohol consumption among children, adolescents and women in reproductive age.

Alcoholic beverages in all its forms can be toxic and addictive. The harmful effects of alcoholic beverages that are prepared on a large scale (including in factories) as well as those that are made by small-scale informal brewers are similar. Excessive and prolonged intake of alcoholic beverage is harmful and is linked with several adverse health effects, including liver disease, some cancers, heart diseases, injuries, disability, and deaths. Alcoholic beverage intake by pregnant and lactating mothers, even in small quantities can have serious health implications on their children.

Alcoholic beverages are becoming increasingly affordable and accessible, leading to increasing alcohol intake and its related health, economic and social problems. About one out of 10 persons are considered heavy drinkers in Ghana.



LIMIT

Alcohol intake



Serving sizes in a healthy diet

The smallest quantity of the total amount recommended to be eaten in a day

Table 2.0: Fruits

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Avocado, pulp, raw	matchbox size	1	40
Apple, with skin, raw	small apple size	2	144
Banana, yellow flesh, raw	small banana	1	70
Orange, raw	medium orange	1	170
Mango, pale flesh, raw	average orange size	1	145
Papaya, fruit, ripe, raw	empty 125g sardine tin	2	215
Pineapple, pulp, raw	empty 125g sardine tin	1.5	149
Watermelon, fruit, raw	matchbox size	6.5	260
Dates, dried	unit	1.5	23
Grapefruit, pulp, raw	small size	1	230
Tangerine, Fresh, Raw	small size	3	154
Blackberries, fresh	unit	42 pieces	210



Table 3.0: Vegetables

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Cabbage, Green, Fresh, Fried	stewing spoon	1 and 1/3rd	72
Tomato, Ripe, Fresh, raw	170g empty evaporated milk can	1.5	164
Pepper, Sweet, Green, raw	medium-sized egg	3.5	110
Cucumber, raw	empty 70g small tomato puree tin	3	195
Carrots, Fresh, raw	tablespoon	3 heaped tablespoons	80
Eggplant, Thick & Short (Type3), with Skin, Fresh, Boiled	empty 70g small tomato puree tin	2	122
Okro Soup	soup ladle	1	72
Spinach, Boiled* (Without Salt)	tablespoon	3	110
Onion, Large Bulb, Fresh, raw	small egg size	3	76
Cocoyam, Leaves, Boiled* (without Salt)	stewing spoon	1.5	78
Lettuce, raw		33 small leaves	165



Table 4.0: **Legumes, Pulses and Nuts**

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Beans, white, boiled* (without salt)	pure water sachet	1/5th	112
* Groundnuts, paste, raw *boiled*	tablespoon	3	20
* Groundnuts, paste, raw *boiled*	tablespoon	1	17
Cowpeas, dried, boiled	pure water sachet	1/4th	120
Cashew Nut, dried, roasted	unit	20 pieces	20
Bambara groundnut, combined varieties, dried, raw (Ghana)	empty 70g small tomato puree tin	2/3rds	37
Koose fried	medium-sized egg	4	90



Table5.0: Animal Source Foods

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Egg, Chicken, whole, boiled	medium-sized egg	2	96
Egg, Chicken, whole, fried	medium-sized egg	2	86
Beef, medium fat, fresh, boiled	matchbox size	1.5	45
Goat, medium fat, fresh, raw boiled	matchbox size	4.5	135
Milk, cow, canned, evaporated	(a) 170g evaporated milk tin or (b) 30g sachet	(a) 2/3rds of tin (b) 3 and 2/3rds	a) 113 b) 110
Milk, cow, powder, whole	5 tablespoons	30g	30
Sardines in oil, canned (drained solids with bone)	125g sardine tin	3/4th of tin	67.5
Mackerel, boiled* (without salt)	matchbox size	2 and half	80
Tilapia, steamed*(without salt)	size 1 volta catch	3/5ths	126
Tuna, grilled* (without salt and fat)	matchbox size	4 and a quarter	85
Fish, Nile Perch (Type3), fresh, fried	matchbox size	3 and 3/4	128
Fish, Nile Perch (Type3), fresh, boiled	matchbox size	4	152
Anchovy, fillet, grilled* (without salt and fat)	empty 125g sardine tin	3 and half (loosely packed)	95
Chicken, drumstick, meat & skin, fresh, boiled	matchbox size	3 and half	75
Chicken, thigh, meat & skin, fresh, fried	matchboxes	2	57
Shrimp/Prawn, boiled	pure water sachet	1 and a quarter	151
Chicken, Gizzard, fresh, boiled	unit	9 pieces	72

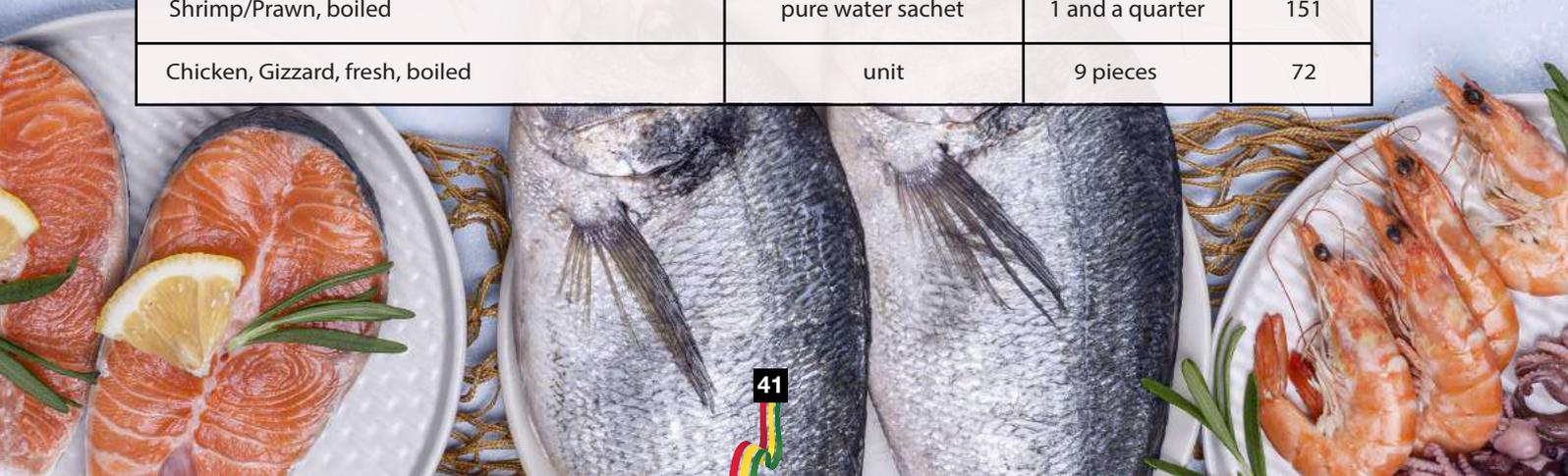


Table 6.0: Healthy fats, Oils and Oil seeds

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Vegetable Oil, unspecified brand, raw	teaspoon	2	6
Butter, from cow's milk (without salt)	teaspoon	1.5	8
Margarine, fortified	teaspoon	1.5	8
Palm oil, red	teaspoon	1.5	6
Palm oil, refined	teaspoon	2	6
Shea butter	teaspoon	1	5
Groundnut oil	teaspoon	2	6
Coconut oil	teaspoon	2	6
Soya oil	teaspoon	2	6

Table 7.0: Whole/unpolished grains/cereals and Tubers

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Bread/rolls, white	small roll	1 and 2/3rds	77
Bread, wheat, refined flour, baked	empty 125g sardine tin	1 and 1/5th	76
Macaroni, boiled* (without salt)	tablespoon	4	128
Wheat, whole grains, raw	teaspoon	12.5	63
Rice, white, polished, boiled	tablespoon	4 heaped tablespoons	155
Rice, white, polished, fried	stewing spoon	1 and 2/3rds	114
Maize, yellow, soft porridge* (without salt)	ladle	3.5	415
Banku, fermented maize dough boiled	large egg size	3.5	179



Table 7.1: Whole/unpolished grains/cereals and Tubers

Food Name	Serving size (unit)	Size (amount)	Approximate Amount (g)
Millet, whole grain, boiled*(without salt)	170g empty evaporated milk can	1.5	147
Baby cereal, mixed cereal, dry, tom brown	170g empty evaporated milk can	3/5ths	57
Cassava, fresh, boiled	300ml glass soda(fanta, coke etc) bottle size	half	180
* Cassava, flour, raw *fried*	pure water sachet	1/4th	64
* Cassava flour, raw *boiled*	large egg size	1	64
Green, fresh, boiled	1 finger	1 and 4/5th	171
Yam Tuber, boiled* (without salt)	empty 125g sardine tin	1 and 1/10th	150
* Cocoyam, fresh, raw *boiled*	medium-sized egg	3	177
Kenkey (Ga)	empty 125g sardine tin	1	177
Sweetpotato, yellow, without skin, fresh, boiled	matchbox size	5	165
Plantain, fried	empty 70g small tomato puree tin	1.5	90
Osino Kenkey with sugar	tablespoon	10.5	158
Oats, boiled	teaspoon	6	51
Porridge, maize and guinea corn recipe Mion	ladle	half	58
Maize on cob, white variety, fresh, roasted	large size	1.5	92

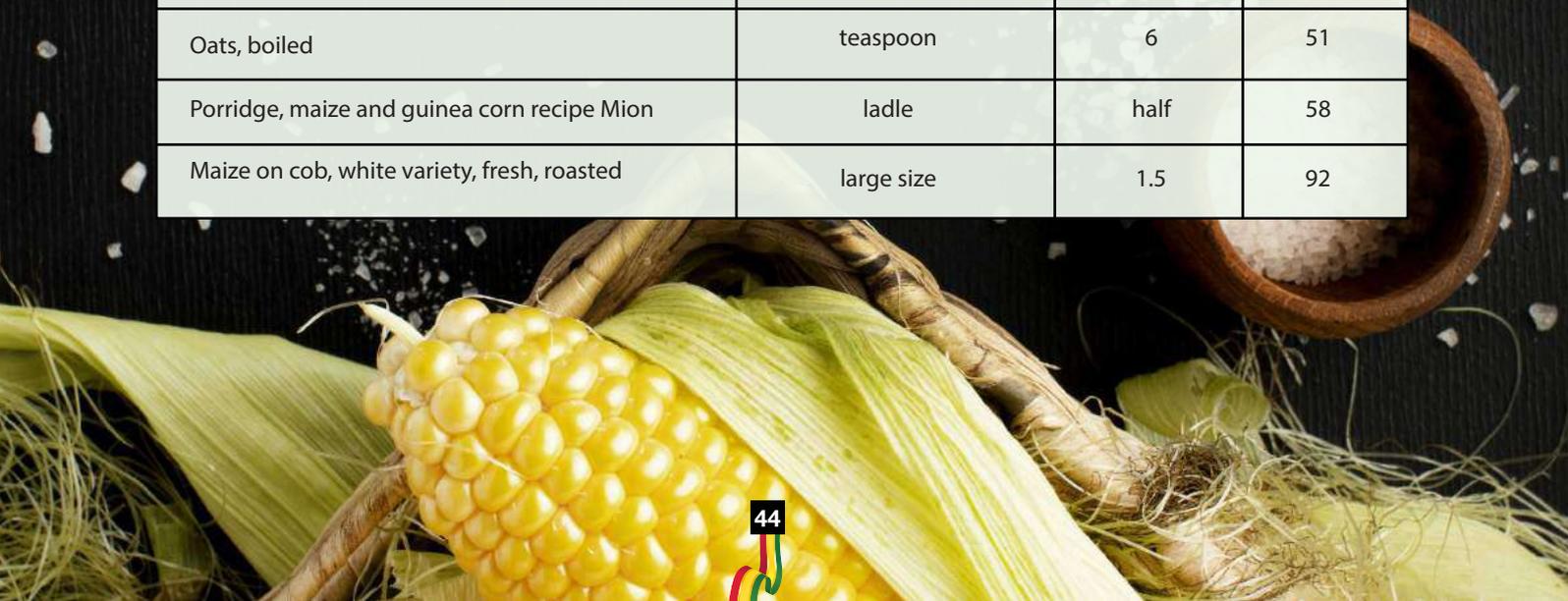


Table 8: **Diet modelling information**

Food group	No. of servings/day	Total amount to consume (g/day)	Total energy/day from food group (kcal)
Animal-sourced food	1.5	144	262
Staples	5	672	1,282
Fruits	1.5	226	158
Vegetables	2.5	227	117
Legumes, pulses, nuts	3	198	636
Healthy fats and oil	1	6	54
Discretionary choices	0.5	42	131





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