



Fitness

NUTRITION



Coach

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Introduction	2
Chapter 1: General Nutrition	7
Chapter 2: Macronutrients	31
Chapter 3: Micronutrients & Hydration	86
Chapter 4: Dietary strategies for endurance exercise	118
Chapter 5: Dietary strategies for high-intensity exercise	141
Chapter 6: Dietary strategies for muscular hypertrophy	150
Chapter 7: Dietary strategies for body fat reduction	162
Chapter 8: Dietary analysis	187
Chapter 9: Nutrition coaching	205
Chapter 10: Supplements	230
References	239

Introduction

In choosing to study for the Fitness Nutrition Coach (FNC) credential you are embarking on a journey of discovery and enlightenment regarding food, and the nutrients contained therein, and how they interact with the human body to promote health and well-being. There are numerous topics to learn during this course that will broaden your understanding of how the human body functions. Starting with basic physiological processes of digestion through to the more complex individual chemical nutrients that we absorb, you will learn how they are utilized to stimulate growth, rebuild tissues, restore and save energy, fuel physical activity, and support the vast myriad of cellular functions necessary for a healthy working body.

The wider health and fitness industry has, for many decades, embraced the use of nutritional principles, diet, eating patterns and behavior change to support clients in reaching their health and fitness goals. Most modern fitness professionals will likely apply some degree of nutritional guidance in support of their clients and members. The use of nutrition coaching can be a significant benefit to most fitness trainers and may even provide a higher level of service to those who have enhanced their knowledge and skills to the next level beyond the basic nutrition taught within most personal training or fitness coaching courses. Providing bespoke nutrition services to appeal to individuals who are seeking additional support can certainly be an attractive sales tool to bring in new customers and clientele. It could also be argued that fitness professionals providing weight management or hypertrophy services without influencing dietary change would be a significant oversight and would likely lead to poor results.

Scope of practice

Scope of practice is defined as the qualified limits of your knowledge, skills and experience and is made up of the industry appropriate activities and services that are carried out within your professional role. It is incredibly important that all fitness professionals understand the range and scope for which they can practice concerning their nutritional knowledge and services. It can be very tempting when gaining further knowledge through reading a new book or learning information on the internet to want to share that new information and knowledge with clients and members alike. When acting in your professional role as a fitness industry expert it is imperative to remain within the boundaries of your relevant qualifications and professional certifications.

Introduction

New information can be exciting to learn, but should not become part of your regular professional practice unless it is aligned with appropriate professional certifications and is in harmony with widely accepted, scientifically validated dietary guidelines

The accepted scope of practice for fitness industry professionals can be generally described as follows;

Nutrition Coaches can provide food and nutritional advice for generally healthy individuals in respect to their eating habits and daily food and beverage consumption. Changes to eating patterns should be taught and coached in a principle-oriented manner to encourage gradual, consistent behavior change that empowers the individual to take ownership of their daily habits and to make better food choices going forward.

After studying this text and passing the associated assessment, you will be awarded the respective credential of 'Nutrition Coach'. This title is associated with your proven competency of the subject matter contained within this text, and it may only be used with respect to providing nutritional advice that helps your client to better understand how and why their eating habits impact their fitness training program and goals for improved health. **Completion of this course does NOT qualify you as a Licensed Dietician.** There are differences in what you may do as a Nutrition Coach versus what a licensed professional is qualified to do. Once you have passed this course exam, **you will be a Nutrition Coach**, capable of offering the following services to your clients (as shown in this illustration 'Professional Scope of Practice: Nutrition Coach').

Please note the Do's and Don'ts regarding how you can serve your clients as a Nutrition Coach:

Professional scope of practice: Nutrition coach	
CANNOT DO Prescribe diets or supplements to treat diagnosed medical and/or clinical conditions. Prescribe diets or supplements to treat symptoms of medical and clinical conditions. Diagnose medical conditions or health-related disorders, no matter how small.	CAN DO Analyse dietary consumption patterns and provide professional nutrition coaching. Guide clients regarding food shopping, recipe ideas, cooking, & other practical tips to improve everyday dietary practice. Inform clients about supplements and their proven purposes.

*This relates to a certified nutrition coach/advisor without a relevant nutrition degree or specific supplement certificate

Nutrition perspective

A certified fitness professional who obtains further registered certification and status (i.e. 'Registered Dietician') could also provide nutritional guidance for specific diagnosed health conditions, along with supplement dosages and pre-set daily meal plans. As a Fitness Nutrition Coach, though these specific areas of guidance are not part of your FNC scope, you **are qualified to help your clients with nutritional perspectives** and understandings of how habitual eating rituals can either positively or negatively impact health and wellness goals.

Teaching healthy dietary practices can be viewed from two separate perspectives. **One perspective is to educate from the outside, in respect to the food and nutrients being consumed.** This approach provides a distinction between nutritious, wholesome foods and low-quality 'junk' foods; identifying food sources rich in carbohydrates, proteins, and fats, ensuring sufficient micronutrients, and offering consumer advice regarding food labeling. **The other perspective is from the inside or the internal physiological perspective.** This includes education on how the body utilizes different foods once ingested, as well as the foods' positive & negative effects on physical health and wellbeing once it is broken down into its influential chemical components.



Understanding both the outside and the inside perspectives are important. However, since nutrition education from the 'outside' perspective is widely practiced and made readily available, this course will provide a greater emphasis on the "inside" point of view to ensure a physiological systems-based understanding for providing nutritional advice.

Healthy eating

Most nutrition practitioners would agree that one of their primary objectives is to help their clients to eat in a manner that would be 'healthy'. **Healthy eating is a consistent routine of consuming food and beverages that support the proper and optimal functioning of the human body** resulting in lasting wellness and longevity.

Despite significant advances through scientific research to determine exactly what comprises a healthy eating pattern for humans, this is still open to a certain level of healthy scientific scrutiny and debate. It is likely that a single, optimal dietary approach to service all the unique needs across a diverse population may never be revealed. However, there are several well-accepted dietary principles that appear to be true across all different populations and often form the backbone of national and international dietary guidelines.

These accepted dietary principles are:

- ◆ Eat a nutritionally sufficient diet from a variety of food sources
- ◆ Reduce saturated fat and refined sugar intake
- ◆ Eat vegetables in abundance and include fruit intake regularly
- ◆ Reduce total processed salt intake
- ◆ Keep well hydrated, but alcohol should only be consumed in limited amounts
- ◆ Manage energy balance as needed for weight maintenance or reduce excess weight

It is also important to recognize that within a culturally diverse population, as is found in most modern communities around the world today, there will be several other factors that feed into dietary choices beyond awareness of published healthy eating guidelines.

Cultural expectations, religious practices, personal or family dietary preferences, social pressures, ethics and morals, personal goals and objectives, body weight, physical activity habits, employment and working practices offer a few of the important and influential factors that will influence an individual's daily eating behaviors. A well-trained nutrition coach will explore and discuss these other related factors with a client to understand the client state of play in advance of dispensing nutritional advice.

Many individuals have developed formerly ingrained eating habits and behaviors that they often unconsciously justify and defend to undermine change, even though they may intellectually understand the

Introduction

importance of altering diet to bring about the changes or improvements that they seek. Living in culture of traditional with behaviors that are often learned over long spans of time (i.e. 'eat everything off of your dinner plate before leaving the table') can be major factors in not reaching in nutrition goals, if not addressed. Therefore, mastering good communication and behavior change skills are also an important element to becoming an effective nutrition coach. Communication and coaching skills are so important to the modern nutrition coach that they will be the topic of an entire chapter that will be discussed later.

Chapter 1: General Nutrition

Nutrition defined

Before we can learn effectively about nutrition, we first must clearly define what is meant by the term nutrition or nutrients.

The Encyclopedia Britannica defines nutrition as:

Nutrition: *the assimilation by living organisms of food materials that enable them to grow, maintain themselves, and reproduce.*

The Merriam-Webster dictionary defines nutrients as:

Nutrients: *a substance or ingredient that promotes growth, provides energy, and maintains life.*

By mere definitions alone, we can ascertain that providing the human body with the necessary food compounds, the substances that support and sustain life, is the fundamental process of nutrition. The study of nutrition centers around all the various factors to do with food and dietary practice and how to manage these effectively. This sounds easy enough but requires a significant amount of learning regarding human physiology and the chemistry of foods and how these impact and interact with the human body. This is compounded by the realization that each human being may respond slightly differently to the same foods. This is all part of the process of guiding clients along their own personal nutrition journey.

Diet or starvation?

Strictly following a proper diet can at times be extremely difficult, if not impossible. It takes practice! It may take many months to completely change current poor eating habits into sustainable good habits. It may be helpful to suggest to a client that they work on their diet one meal at a time. Work on the first meal for a week, two weeks, and add what it takes to make this one meal rich in nutrition, then move on to the next. Patience is certainly a valuable virtue when practicing dietary behavior change.

Avoid associating the word diet with starvation! Not all diets require a reduction in food energy. A starvation mindset may affect individuals mentally and physically. Mentally, starvation takes its toll on willpower, which is a finite resource. There is an increased likelihood that a 'break down' of willpower occurs when operating from a 'starvation' mindset, which generally manifests itself as a binge or feast on junk food, that is later perceived as a personal failure, which in turn often carries guilt and shame. Such mental and emotional gymnastics are very taxing on an individual and may often lead to a decrease in self-worth. The irony is the individual started with the intention of improving themselves and the result is exactly the opposite. Starving oneself simply doesn't work. Physiologically, when the body senses starvation, a chronic lack of food energy, it has the capacity to adapt its cellular processes and enter a phase sometimes referred to as 'survival mode'. This can be grossly simplified as an attempt to conserve body fat, the densest source of energy, in an attempt to increase the long-term chances of survival, which is a sensible thing to do if a widespread famine was to occur. Internal physiology has the ability to reduce the basic rate of energy expenditure, while utilizing amino acids, blood proteins, muscle, and organ tissue as potential sources of energy to complement the shortfall during such extreme conditions. So, starvation leads to the body holding on to its fat (exactly the opposite of the goal).

Severe dietary restriction, with very low energy intake, can cause the body to shift towards these types of survival-oriented adaptations. As a client learns more about their required diet, they may be surprised at the required daily energy intake needed to sustain optimal health. Daily energy needs can vary significantly between one individual and the next.

Hydration

When discussing diet, it is essential to mention the body's most immediate needs: oxygen and water. Adequate fluid intake is extremely vital to many internal body functions. For many individuals, their physical appearance drives their motivation to exercise and eat properly. Consider the following; in addition to muscle cannibalism, caused by starvation, and muscle atrophy (loss of muscle size), caused by inactivity, there is also the possibility of muscle shrinkage due to dehydration. A considerable amount of muscle mass is composed of fluid. When the body senses dehydration, it increases its efforts to retain the existing water it has within the body. During a period of dehydration, a portion of the fluids in the muscle will likely be given up to help with various hydration needs elsewhere in the body, thus reducing the size and appearance of the muscle tissue. Hydration will be addressed in much more detail later in this manual.

Processed 'junk' food

One of the features that strongly denotes a western-style diet is the presence of a large amount of heavily processed foods. Many processed foods are known as junk food, which carries the connotation of being poor quality food that does not provide adequate nutrition to support healthful, physical function. What exactly is junk food? Junk food has been defined as:

Junk food: *A colloquial term for palatable but unwholesome food that is high in fat, salt, or sugar but deficient in protein, fiber and vitamins.*

Junk food offers very little to no benefit where nutritional value is concerned. What it does offer is a high level of energy-dense calories from processed sugar and fat, usually in the form of pre-packaged snacks and easily accessible 'fast foods'. Nutritionally speaking, it is not uncommon to find meals that require no preparation are likely meals that are not worth eating at all. Unfortunately, the idea of 'no preparation' convenience food is the attraction for many people when it comes to quick and easily accessible meals.

We live in a day and age of instant gratification, which often translates to poor food choices and unhealthy eating habits. But there is hope. Habits can be slowly but surely changed when the right approach is taken. This can start by seeing 'fast' food as something other than what is on a drive-thru restaurant menu. Not all convenience food is unhealthy. Consider, for example, a piece of fruit or a salad, these are quick picks in terms of accessibility that also have nutritional value. A change in eating habits starts with recognizing what junk food is. Sure, it may taste good, there's no denying that. In many cases, junk food has been specifically engineered to optimize taste, smell, texture, and palatability. However, when we consistently recognize it as 'junk' when we put it into our mouth, that is the beginning of the early steps to controlling the amount and the timing of its intake.

Not all processed foods fall under the black cloud of being 'junk' food. Technically, it is more accurate to refer to processed food using the well-accepted NOVA categorization system. NOVA identifies four levels of food processing and places foods determined by their degree of industrial processing into each category.

General Nutrition

NOVA Processed food categories		
Group	Description	Example foods
1. Unprocessed or minimally processed foods	<p>Unprocessed: obtained directly from plants or animals and do not undergo any alteration following their removal from nature</p> <p>Minimally: natural foods that have been submitted to cleaning, removal of inedible or unwanted parts, fractioning, grinding, drying, fermentation, pasteurization, cooling, freezing, or other processes that may subtract part of the food, but which do not add oils, fats, sugar, salt or other substances to the original food.</p>	<ul style="list-style-type: none"> ● Frozen fruit or vegetables ● Wholegrain rice or wheat ● Eggs ● Lentils, beans, or chickpeas ● Dried fruit ● Nuts & seeds ● Fresh or dried herbs & spices ● Fresh/frozen meat, poultry or seafood
2. Processed culinary ingredients	<p>Products that are extracted from natural foods or from nature by processes such as pressing, grinding, crushing, pulverizing, and refining. They are used in homes and restaurants to season and cook food and thus create varied and delicious dishes and meals of all types</p>	<ul style="list-style-type: none"> ● Nut & seed oils ● Butter ● Lard ● Coconut oil or cream ● Sugar ● Honey ● Maple syrup ● Sea salt ● Corn starch

Group	Description	Example foods
3. Processed foods	<p>Products that are manufactured by industry with the use of salt, sugar, oil or other substances (Group 2), that are added to natural or minimally processed foods (Group 1) to preserve or to make them more palatable. They are derived directly from foods and are recognized as versions of the original foods</p>	<ul style="list-style-type: none"> ● Canned legumes, vegetables in brine/vinegar ● Tomato paste ● Canned fruit in syrup ● Bacon ● Salt/sugared nuts & seeds ● Salted, dried, smoked or cured fish/meat ● Fermented cheeses ● Fermented alcoholic beverages
4. Ultra-processed foods	<p>Industrial formulations made entirely or mostly from substances extracted from foods (oils, fats, sugar, starch, and proteins), derived from food constituents (hydrogenated fats and modified starch), or synthesized in laboratories from food substrates or other organic sources (flavour enhancers, colours, and several food additives used to make the product hyper-palatable). Manufacturing techniques include extrusion, moulding and preprocessing by frying. Beverages may be ultra-processed. Group 1 foods are a small proportion of or are even absent from, ultra-processed products.</p>	<ul style="list-style-type: none"> ● Fatty, sweet, savoury or salted packaged snacks ● Biscuits ● Ice-cream ● Chocolates & confectionery ● Soft drinks ● Energy drinks ● Instant soups, noodles, sauces & seasonings ● Margarine & spreads ● Pre-prepared pizza & pasta ● Chicken or fish nuggets ● Packaged bread & bread rolls ● Baked goods & pastries ● Breakfast cereals

In the Western diet, the amount of food that falls into the fourth category, ultra-processed foods, is growing rapidly and at an average of 26.4% of the European diet (as 2017) and 57.9% of the US diet (as of 2015), it already comprises too much of the typical modern diet to be supportive of optimal health and well-being. It is clearly necessary to encourage your clients to consume more of the less processed foods (those identified in categories 1, 2 & 3) in order to promote and achieve a healthier diet and overall lifestyle. The NOVA categorization system is not perfect as it certainly identifies some foods that have significant health value under categories 2 and 3 which can imply that they are processed and therefore are not nutritious, or vice versa. For example, refined and crystalline sugar is identified in category 2 but this has virtually no nutritional value whatsoever. While in category 3 we can find fermented cheeses which have significant nutritional value but are listed under the processed foods banner, suggesting a lower nutrition option. Indeed, cheeses have a whole range of processing levels, from traditionally fermented, full-fat cheeses through to highly processed cheese spreads and burger slices. The value of this categorization system is to first understand that the principles being taught are more broadly looking towards utilizing less processed foods as components to a healthful diet. The main consideration to note is that there is a consistent trend towards increased obesity with greater consumption of ultra-processed foods. Obesity is a condition that negatively affects health and therefore suggesting or encouraging the consumption of ultra-processed foods should be minimized or avoided all together when possible.

Healthy food

In contrast to the definition of 'junk food', health food or a 'healthy food' diet is defined as:

natural foods consumed in appropriate proportions to support energetic needs without excess intake, while appropriately satiating hunger. They will also provide sufficient micronutrients to meet the physiological requirements of the body to sustain life and effective biological functions. (*re: Cena and Calder , 2020*)

Healthy foods will likely include a wide range of unprocessed, natural, whole foods that are not high in refined sugar and salt, additives or preservatives, nor saturated or trans fatty acids. There may be other factors that play a part in a food's health status, such as the type and quality of farming, the quality of the originating soil, the living conditions and the welfare of the animals. Healthy food should not contribute to the risk of disease, decreased wellbeing, nor the overall morbidity or mortality of those who consume it. As the name suggests, it must contribute to and support overall health.

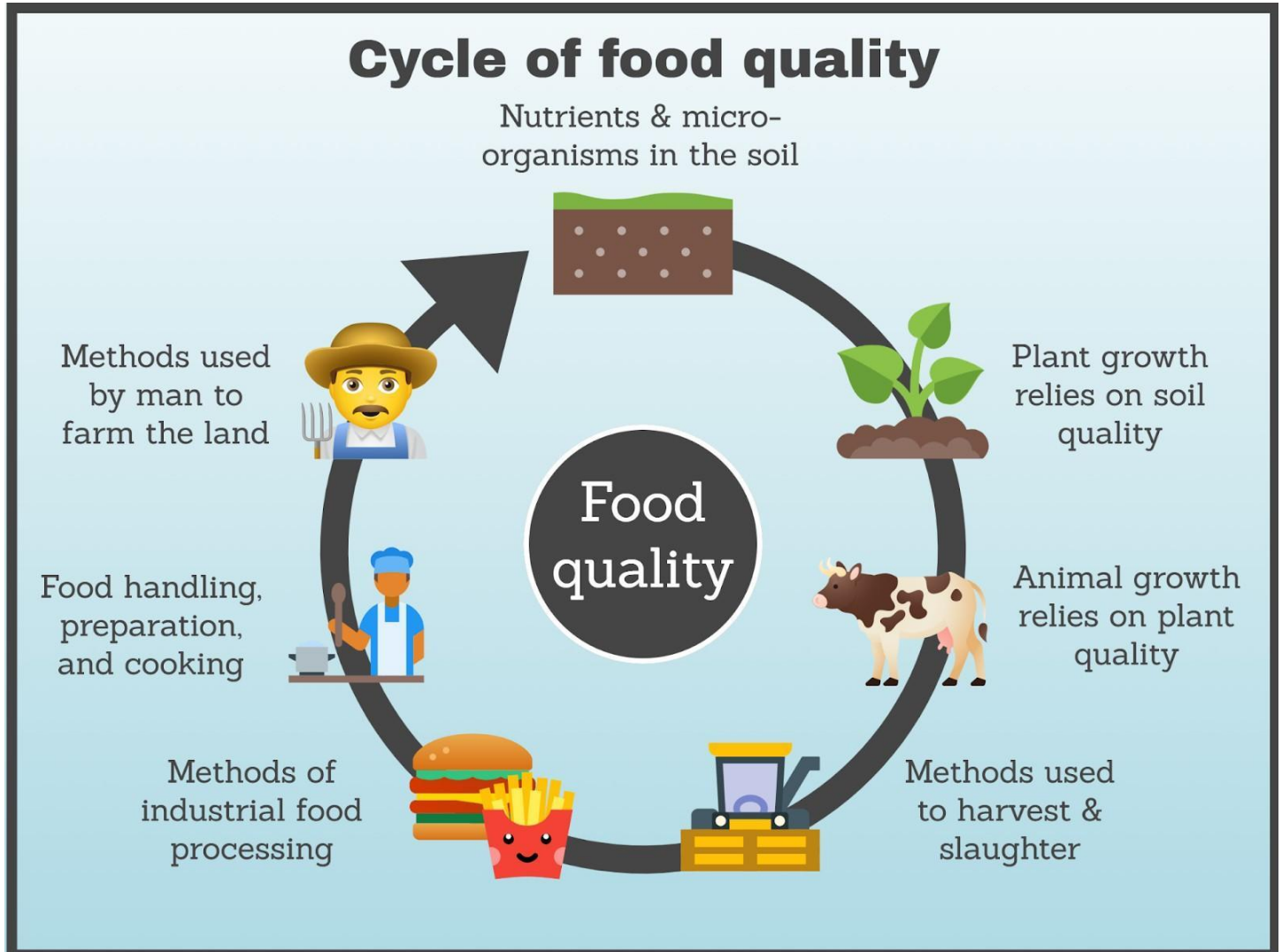
According to the U.S. Food and Drug Administration (FDA), "Health claims describe a relationship between food, food component or dietary supplement ingredient, and reduced risk of disease or health-related condition".

Unfortunately, some controversy may exist as to the 'health' claim permissions, granted by the FDA, to food product manufacturers who can make claims of 'health' based on less than rigorous scientific evidence. It would be wise to use careful judgment in determining which foods are healthy, rather than rely on prevalent marketing of certain foods that attempt to increase their sales using a healthy status or health-related logo or checkmark.

The cycle of food quality

Understanding food quality is an important aspect of turning our focus towards optimal health. To fully understand what brings quality and nutrition to food, it is important to grasp the principles surrounding the cyclical nature of food production, where it begins, and the stages along the way that add nutritional value or that detract and take away some of that important nutritional value. This introduces the concept of the cycle of food quality. As human beings are at the top of the food chain, everything below us influences the nutrients that are received at the top.

The cycle of food quality begins in the soil and ends when humans eat the resulting food that is grown and produced. In modern agriculture, man often determines the soil quality too!



Nutrient density

Another commonly used method of determining food quality is referred to as nutrient density. Identifying the degree to which a food contains a range of specific nutrients must have a foundational factor for which to compare the concentration of existing nutrients against. The most commonly used factor for comparing the nutrient totals is measuring against a 100 calorie reference. However, the scientific method has not yet settled on a single, universal definition and research on nutrient density also uses comparisons per 100g of food (4/5 cup), or the nutrient totals per typical serving size of the food item.

General Nutrition

The nutritional score is usually taken as an average of the percentage daily value present for each of the measured micronutrients. Providing the comparisons are like-for-like, in terms of their base level factor, then each nutrient density score will provide a useful comparison of the total nutritional content present within any specific food item. In essence, the intention is that a nutrition density score can help to indicate and support the consumption of foods that contain higher levels of micronutrients and lower levels of total caloric energy. The table below serves as an example of nutrient density data, which lists commonly consumed fruits and vegetables.

Food	Nutrient density score	Food	Nutrient density score	Food	Nutrient density score
Watercress	100.00	Kale	49.07	Iceberg lettuce	18.28
Chinese cabbage	91.99	Dandelion green	46.34	Strawberry	17.59
Chard	89.27	Red pepper	41.26	Radish	16.91
Beet green	87.08	Arugula	37.65	Winter squash	13.89
Spinach	86.43	Broccoli	34.89	Orange	12.91
Chicory	73.36	Pumpkin	33.82	Lime	12.23
Leaf lettuce	70.73	Brussels sprout	32.23	Pink grapefruit	11.64
Parsley	65.59	Scallion	27.35	Rutabaga	11.58
Romaine lettuce	63.48	Kohlrabi	25.92	Turnip	11.43
Collard greens	62.49	Cauliflower	25.13	Blackberry	11.39
Turnip greens	62.12	Cabbage	24.51	Leek	10.69
Mustard green	61.39	Carrot	22.60	Sweet potato	10.51
Endive	60.44	Tomato	20.37	White grapefruit	10.47
Chive	54.80	Lemon	18.72	(CDC 2014)	

Not all nutrition scientists agree with using a nutrient density score that is essentially focused on inverse calorie density. It is fair to acknowledge that certain foods have high nutritional value but may also carry higher levels of fat, carbohydrate and total calories as well. For example, meat, nuts and seeds are all very high-calorie foods, but they can also pack a punch in terms of the nutrients they contain.

The classic calorie-oriented nutrient density score would rate these foods with a moderate to low nutrient density value because of their high-calorie load. However, if the nutrient density score has a base factor focused on the weight of the food per 100g (4/5 cup) or the typical serving size then these types of food tend to score a little better overall.

Another consideration in the nutrient density argument is the level of nutrient bioavailability in a specific food.

Bioavailability refers to the capacity of the body and digestive system to extract and absorb the nutrients that are contained within the plant or animal food. Some plant foods may be rated high in nutrient density, but when we look at the bioavailability of some of those nutrients it is apparent that only a portion will become available to the body through digestion and absorption.

A great example of this is that 100g (3.3 cups) of spinach leaves contains 58mg calcium while only contributing 14 calories. This means that 100 calories of spinach will contain 414mg calcium. However, the bioavailability of calcium in spinach is only 5% which means that if an individual did manage to consume a full 714g (approximately 24 cups) of spinach leaves to account for 100 calories of energy, they would still only absorb 20mg of calcium from the spinach after digestion was complete.

A more common source of calcium in the diet is the higher calorie option of whole milk. 100g of whole milk (0.41 cups) contains 60 calories and 113mg of calcium. This means that 100 calories of milk (166g or 0.68 cups, about 2/3 of a regular 8 ounce glass of milk) contain 188mg calcium. The calcium in whole milk has a bioavailability of 30%, so this two thirds glass of milk supplies about 57mg of calcium through digestion and absorption into the body. Therefore, despite the much higher total nutrient density score for spinach, we can see that per 100 calories of milk has 3 times more bioavailability for calcium as does spinach. It is acknowledged we are only looking at a single specific nutrient in this example, but it does illustrate the importance of considering the typical bioavailability of nutrients in the food we eat.

The bottom line is that nutrient density is a valuable tool to help rate food quality from a nutritional perspective, but it is just a tool and can be leveraged where needed. However, it should not be the only consideration when selecting foods to eat as part of the daily diet. There are numerous other considerations to factor in.

Food labels

An important and very helpful skill to learn to develop is the ability to read and interpret food labels. Most of the food sold in supermarkets comes in some sort of packaging because food producers intend to increase sales and build their business. Therefore, food packaging serves as a means of advertising and promoting their products to increase sales. A lot of the information found on a food product is primarily to do with increasing the appeal of the product to encourage the customer to purchase. However, there are minimum legal requirements regarding what must be included on a food label. The following list of items must be included by law on a food label in both Europe and the USA:

1. The product should bear a statement of identity (common name of the product)
2. Net weight of the product
3. List of ingredients in the order of predominance by weight
4. Declaration of Allergens
5. Date of minimum durability e.g. best before date
6. Ideal storage conditions
7. Nutrition facts/information table
8. Name and address of the manufacturer or distributor
9. Country of origin

It is also important to recognize that within a culturally diverse population, as is found in most modern communities around the world today, there will be several other factors that feed into dietary choices beyond awareness of published healthy eating guidelines. Cultural expectations, religious practices, personal or family dietary preferences, social pressures, ethics and morals, personal goals and objectives, body weight, physical activity habits, employment and working practices offer a few of the important and influential factors that will influence an individual's daily eating behaviors. A well-trained nutrition coach will explore and discuss these other related factors with a client to understand the client state of play in advance of dispensing nutritional advice. The nutrition facts or information table found on the side or back of a food product package will provide even more useful information to ascertain the quality and contents of a food product. How a nutrition table is presented varies a little between the United States and Europe.

General Nutrition

The following images provide examples of both nutrition tables:

Nutrition Information			
Typical values	per 100g	per serving 40g	%RI*
Energy	1624kJ/ 386kcal	1279kJ/ 304kcal	15%
Fat	8.5g	8.8g	13%
of which saturates	1.5g	3.7g	19%
Carbohydrate	63.4g	39.8g	15%
of which sugars	0.8g	14.6g	16%
Fibre	6.7g	2.7g	
Protein	10.5g	15.0g	30%
Salt	0.03g	0.30g	5%

*Reference intake of an average adult (8400kJ/ 2000kcal)

Food label from the United Kingdom

Nutrition Facts	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
Amount Per Serving	
Calories 230	Calories from Fat 40
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 1g	5%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	12%
Dietary Fiber 4g	16%
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

Food label from the United States

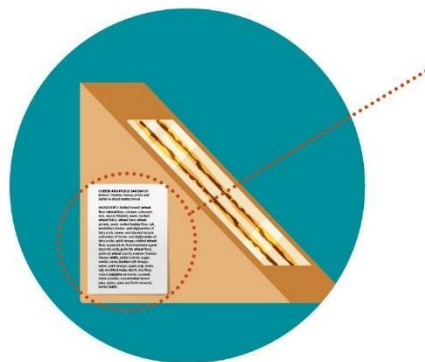
Some important differences worth pointing out between the way these regions are legally required to identify their nutrition information are as follows:

- ◆ In the US the data is based around a standard serving size whereas in Europe it is based primarily around the amount per 100g of product.
- ◆ In the US, the amount of cholesterol contained within a food product must be legally defined, which is not required in Europe.
- ◆ Both are required to label salt, but, in the US, only the actual sodium content is required to be identified, whereas in Europe the complete sodium chloride content is required.
- ◆ In the US the values for vitamin A, vitamin C, calcium, and iron must be identified.

In the United States and Europe, there is a legal requirement to list the ingredients within a food product. As you become more informed with regards to the more common ingredients used in foods, reading the ingredients list can be a very useful way to determine what is contained within food and the quality of that resulting food product.

The law requires that ingredients are listed in descending order from the heaviest to the lightest within the product mix. It would not be unusual to identify less familiar ingredients within processed foods, but if they are identified near the bottom of the ingredients list, then they comprise a very small part of the food product.

This is often the case with regards to common flavorings, additives and preservatives. While these more chemical-sounding names can appear concerning, the small amounts present may suggest it is likely these compounds will have limited or minimal impact on health and well-being for most people. It is important to note that some people have sensitivities to specific food ingredients and even small amounts can cause a negative reaction.



CHEESE AND PICKLE SANDWICH

Mature Cheddar cheese, pickle and butter in sliced malted bread

INGREDIENTS: Malted bread (**wheat** flour (**wheat** flour, calcium carbonate, iron, niacin, thiamin), water, malted **wheat** flakes, **wheat** bran, **wheat** protein, yeast, malted **barley** flour, salt, emulsifiers (mono- and diglycerides of fatty acids, mono- and diacetyl tartaric acid esters of mono- and diglycerides of fatty acids), spirit vinegar, malted **wheat** flour, rapeseed oil, flour treatment agent (ascorbic acid), palm fat, **wheat** flour, palm oil, **wheat** starch), mature Cheddar cheese (**milk**), pickle (carrots, sugar, swede, onion, **barley** malt vinegar, water, spirit vinegar, apple pulp, dates, salt, modified maize starch, rice flour, colour (**sulphite** ammonia caramel), onion powder, concentrated lemon juice, spices, spice and herb extracts), butter (**milk**).

Balanced diet

Perhaps one of the most common phrases used in describing a good nutrition protocol is the term a 'balanced diet'. The concept of a balanced diet revolves around the definition of what the word 'balanced' means. The term balanced is defined as:

Balanced: a state in which different things occur in equal or proper amounts or have an equal or proper amount of importance.

A balanced diet is also centered on striving to find a single dietary protocol that is appropriate for the provision of general guidelines across the widespread population. As many scientists do their best to try and provide this level of dietary advice, other experts see this as an exercise in futility because of the unique levels of biological individuality between members of every population.

There are 7 key factors which are characteristic of maintaining a 'balanced diet'. Throughout this text, we will discuss these in detail with respect to the body's need for adequate supplies of differing types of foods in certain quantities and proportions that fuel our ability to work and perform effectively. Without a balanced diet, our body is more prone to illness, disease,

diabetes and even cancers that can be thwarted off by proper nutrition and better eating habits. These 7 essential factors in a balance diet must be taken into consideration in order to achieve optimal health:

1. Carbohydrates
2. Protein
3. Fat
4. Fiber
5. Vitamins
6. Minerals
7. Water



Assuming that a single dietary protocol is possible, consumption of foods from all of the different food groups, and in the right quantities, would be crucial to maintaining a balanced diet. Though the word '**diet**' is often

misconstrued in the context of a short-term food regimen that results in losing weight, it is accurately **defined as a food or drink regimen that is regularly and habitually consumed for nourishment**. There is a wide spectrum of different dietary protocols across the broad spectrum of sufficient to deficient. A good diet ultimately promotes good health and is a nutritional lifestyle, it is not a temporary refrain from otherwise poor eating habits. The most effective diet for good health must include multiple primary food groups because no single food group can provide all the required daily nutrition for good health.

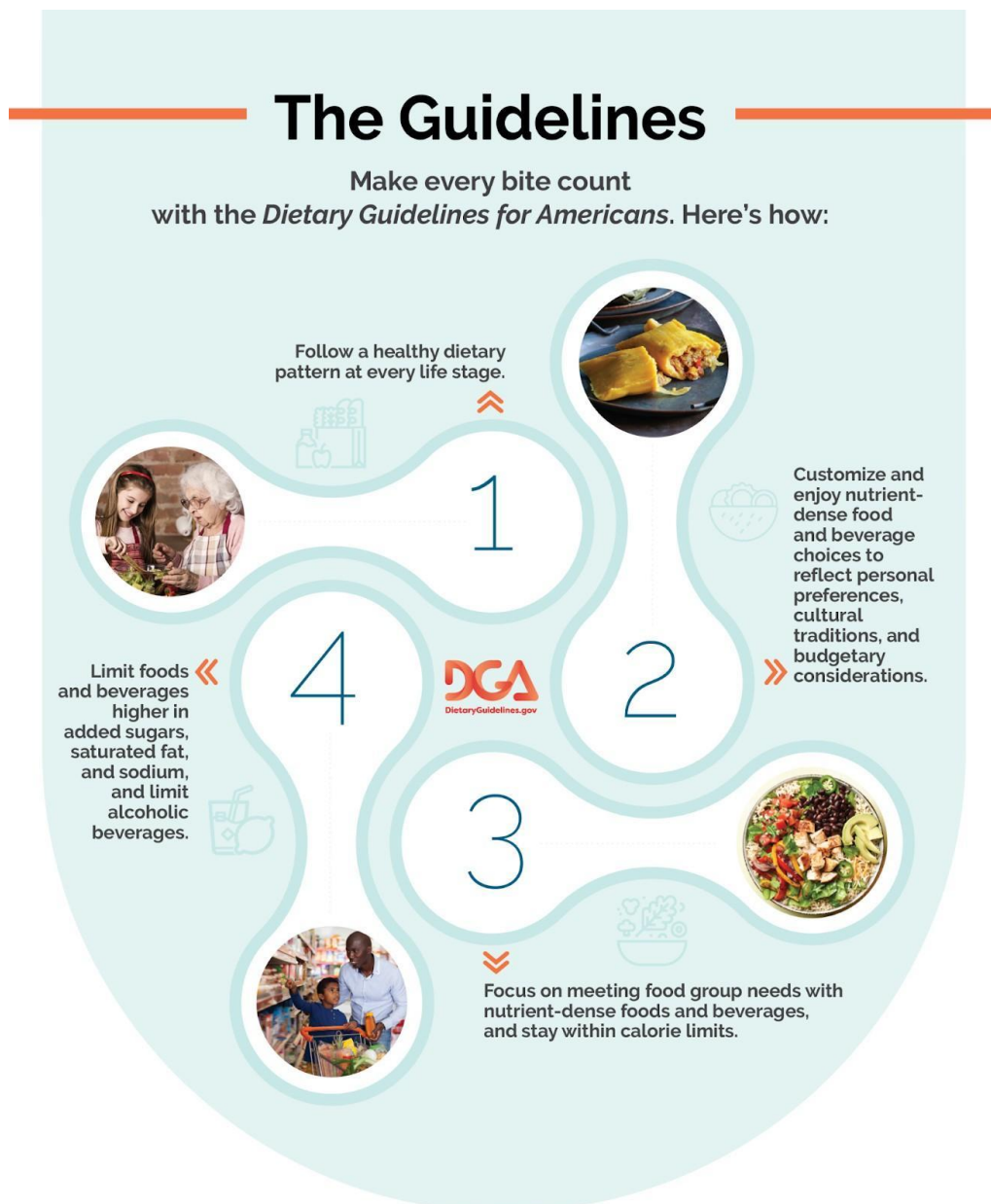
A balanced diet has the right proportions and sufficient quantities of macro-and micronutrients to meet the needs of the individual. Ensuring food is consumed from a broad variety of sources is necessary to make sure that nutrient deficiencies do not occur, or if they do occur, that they are not present for extended periods to initiate negative health effects. Each major, natural food category has important components that are necessary for maintaining bodily functions and sustaining good health. A truly balanced diet will take into account all of these variables, including multiple food groups, varied food sources, and individual differences in nutrient sufficiency. It is this level of complexity that makes defining a truly balanced diet particularly difficult on both a population and individual level. There are certainly many nutrition principles associated with a balanced diet that will continue to be true across broad populations, and it is these specific principles that should inform our current nutrition practice and our scientific inquiry going forward.

Population guidelines

Since the early 1980s, many governments around the world have strived to provide their citizens with dietary recommendations to help curb the growth of chronic health conditions and to support population-wide nutritional needs. These national and international nutrition guidelines have had a significant influence on consumer food choices, supermarket provision, food availability, manufacturer food formulation, nutrition education, medical recommendations and even political health decisions. Government dietary recommendations have likely had the most significant influence on population-wide eating behavior in modern history.

Dietary Guidelines for Americans, DGA (2020-2025)

National nutrition guidelines in the United States of America have been revised and published every five years since their inception back in 1980. One of the main features of these dietary guidelines is the application of a visual infographic to help familiarize the general public with the nutrition guidelines in a simple and clear manner. The DGA infographic has morphed from the initial Food Pyramid, to the My Plate diagram, which has since been added to with a simplified 4-step dietary directive in 2020.



The executive summary of the DGA guidelines provides clarification on what is intended in terms of the application of each objective. The following information is drawn directly from the DGA summary publication (2020):

1. Follow a healthy dietary pattern at every life stage.

- ◆ For about the first 6 months of life, exclusively feed infants human milk.
- ◆ At about 6 months, introduce infants to nutrient-dense complementary foods.
- ◆ From 12 months through older adulthood, follow a healthy dietary pattern across the lifespan to meet nutrient needs, help achieve healthy body weight, and reduce the risk of chronic disease.

2. Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.

- ◆ A healthy dietary pattern can benefit all individuals regardless of age, race, or ethnicity, or current health status. The Dietary Guidelines provides a framework intended to be customized to individual needs and preferences, as well as the foodways of the diverse cultures in the United States.

3. Focus on meeting food group needs with nutrient-dense foods and beverages and stay within calorie limits.

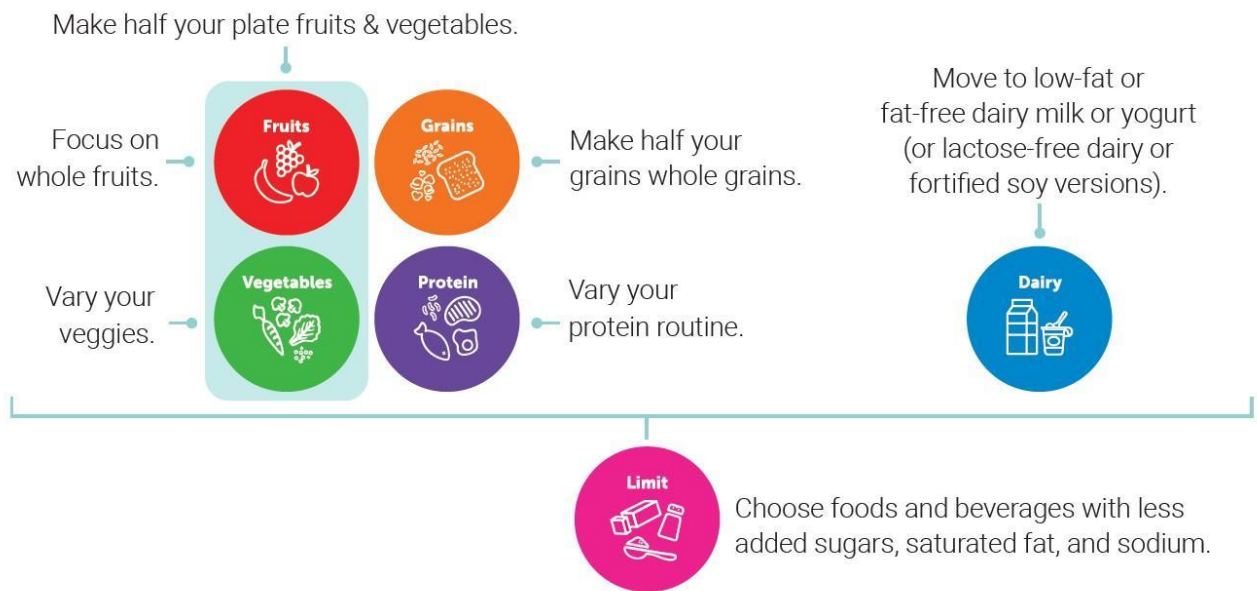
- ◆ Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits. The core elements that make up a healthy dietary pattern include:
 - ◆ Vegetables of all types—dark green; red and orange; beans, peas, and lentils; starchy; and other vegetables
 - ◆ Fruits, especially whole fruit
 - ◆ Grains, at least half of which are whole grain

- ◆ Dairy, including fat-free or low-fat milk, yogurt, and cheese, and/or lactose-free versions and fortified soy beverages and yogurt as alternatives
- ◆ Protein foods, including lean meats, poultry, and eggs; seafood; beans, peas, and lentils; and nuts, seeds, and soy products
- ◆ Oils, including vegetable oils and oils in food, such as seafood and nuts

4. Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages.

- ◆ At every life stage, meeting food group recommendations—even with nutrient-dense choices—requires most of a person’s daily calorie needs and sodium limits. A healthy dietary pattern doesn’t have much room for extra added sugars, saturated fat, sodium, or alcoholic beverages. A small amount of added sugars, saturated fat, or sodium can be added to nutrient-dense foods and beverages to help meet food group recommendations, but foods and beverages high in these components should be limited. Limits are
 - ◆ Added sugars—Less than 10% of calories per day starting at age 2. Avoid foods and beverages with added sugars for those younger than age 2.
 - ◆ Saturated fat—Less than 10% of calories per day starting at age 2.
 - ◆ Sodium—Less than 2,300 milligrams per day—and even less for children younger than age 14.
 - ◆ Alcoholic beverages—Adults of legal General Nutrition age can choose not to drink, or to drink in moderation by limiting intake to 2 drinks or less in a day for men and 1 drink or less in a day for women when alcohol is consumed. Drinking less is better for health than drinking more. Some adults who should not drink alcohol, such as women who are pregnant.

Healthy eating is important at every stage of life.



The benefits add up over time, bite by bite.

USDA Food and Nutrition Service (Dec 2020)

World Health Organization (WHO)

The World Health Organization has also provided a range of nutrition guidelines based on several of their published reviews of the scientific literature over the years and also through their access to a unique global perspective.

WHO states: Consuming a healthy diet throughout the life-course helps to prevent malnutrition in all its forms as well as a range of noncommunicable diseases (NCDs) and conditions. However, increased production of processed foods, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars and salt/sodium, and many people do not eat enough fruit, vegetables and other dietary fiber such as whole grains.

The exact make-up of a diversified, balanced and healthy diet will vary depending on individual characteristics (e.g. age, gender, lifestyle and degree of physical activity), cultural context, locally available foods and dietary customs. However, the basic principles of what constitutes a healthy diet remain the same.

WHO provided six key guidelines in April 2020 to direct adults in their dietary consumption. A summary of these healthy eating guidelines is as follows:

1. Adults should seek to **regularly consume fruit, vegetables, legumes** (e.g. lentils and beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat and brown rice).
2. **Eat at least 400g (i.e. five portions) of fruit and vegetables per day**, excluding potatoes, sweet potatoes, cassava and other starchy roots.
3. Aim to **consume less than 10% of total energy intake from free sugars**, which is equivalent to 50g (or about 12 level teaspoons) for a person of healthy body weight consuming about 2000 calories per day, but ideally is less than 5% of total energy intake for additional health benefits. Free sugars are all sugars added to foods or drinks by the manufacturer, cook or consumer, as well as sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.
4. Aim to **consume less than 30% of total energy intake from fats**. Unsaturated fats (found in fish, avocado and nuts, and in sunflower, soybean, canola and olive oils) are preferable to saturated fats (found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard) and *trans*-fats of all kinds (found in baked and fried foods, and pre-packaged snacks and foods, such as frozen pizza, pies, cookies, biscuits, wafers, and cooking oils and spreads).
5. It is suggested that **the intake of saturated fats be reduced to less than 10% of total energy intake** and *trans*-fats to less than 1% of total energy intake. In particular, industrially-produced *trans*-fats are not part of a healthy diet and should be avoided.
6. Aim to **consume less than 5g of salt** (equivalent to about one teaspoon) per day. Salt that is consumed should be iodized.

HEALTHY DIET FOR ADULTS



World Health Organization

Representative Office for the Philippines

The exact make-up of a diversified, balanced and healthy diet will vary depending on individual needs, cultural context, locally available foods and dietary customs. But basic principles of what constitute a healthy diet remain the same.

FRUITS AND VEGETABLES



- ✓ Eat at least 400g or 5 servings per day
- ✗ Potatoes, sweet potatoes, cassava and other starchy roots are not classified as fruits or vegetables

LEGUMES AND WHOLE GRAINS



- ✓ Eat legumes such as lentils and beans and whole grains such as unprocessed maize, millet, oats, wheat and brown rice

FATS



- ✓ Eat less than 30% of total energy intake from fats
- ✓ Unsaturated fats (fish, avocado, nut) are preferable
- ✗ Reduce consumption of saturated fats (butter, palm and coconut oil, cheese) and trans fats (processed food, fast food, margarines)

SUGARS



- ✗ Limit free sugars intake to less than 10% of total energy intake, equivalent to 50g or around 12 teaspoons per day

SALT



- ✗ Limit salt consumption to less than 5g of salt or 1 teaspoon per day
- ✓ Use iodized salt

Dietary guidelines around the world

A recent review of food-based dietary guidelines found 90 countries around the world openly published recommendations for their citizens to follow. The review authors, Herforth et al. (2019), state that;

'Most countries with food-based dietary guidelines (87%) publish a food guide, the official term for a graphic representation of the guidelines. Food guides are intended to provide dietary guidance to the general public by conveying through pictorial images the concepts of variety, proportionality, and adequacy/moderation to meet population dietary needs. Among the 78 countries with food guides, with very few exceptions they include various food groups, usually illustrated with photographs or drawings of numerous example foods in each group.'

It may be of value to summarize some of the information discovered in this review of the food-based dietary guidelines (FBDG) to pick out the most dominant dietary messages that are being shared around the globe in the name of good nutrition for the benefit of the wider public health. Here are some quick facts regarding the 78 published and illustrated food guides from around the globe:

- ◆ 95% convey proportionality between food groups
- ◆ 35% include recommended quantity or number of servings
- ◆ 40% use a pyramid shape to illustrate their guide
- ◆ 27% use a circle or plate to illustrate their guide
- ◆ 51% opt for a division of food into 5 different food groups
- ◆ 89% include direction for consumption of fats/oils
- ◆ 71% include direction for consumption of sugar/sweets
- ◆ 56% include direction for consumption of water
- ◆ 49% include direction on regular exercise/physical activity

More specifically a review of the key nutritional messages shared through the 78 published food-based dietary guidelines (FBDG) from around the world (2019) may help you to appreciate the scale of nutrition guidance provided globally and the prevailing opinion of thousands of experts from around the world who have been consulted prior to publication of such important public health advice within each country.

General Nutrition

Topic	Included in FBDG*	Quantity included in FBDG*	Other key observations
Starchy staples	82%	14%	44% refer to whole grains 59% set starches as the largest food group
Fruits and vegetables	93%	51% recommend 5-a-day (400g)	69% refer to ↑ daily intake 42% advise eating a variety 10% specify fresh sources
Protein foods	74%	38%	50% refer to both plant & animal protein foods 34% refer to eating lean meat 27% refer to consuming fish 23% ↓ or moderate meat intake
Legumes and nuts	58%	N/A	56% provide specific advice about legumes 30% countries group legumes with vegetables Only 19% provide specific advice about nuts
Dairy	75%	14%	31% dairy grouped with protein foods 35% advise daily dairy intake 29% refer to low-fat dairy
Fats and oils	89%	N/A	53% refer to ↓ total fats 44% refer to the quality of fats 43% refer to ↓ saturated fats 18% promote intake of healthy fats 29% advise unsaturated instead of saturated
Topic	Included in FBDG*	Quantity included in FBDG*	Other key observations
Limiting foods	100%	N/A	90% recommend ↓ salt 89% recommend ↓ fat 84% recommend ↓ sugar 28% recommend ↓ processed foods 23% recommend ↓ red, cured, or processed meats

*FBDG = Food-based Dietary Guidelines

**All data has been drawn from A global review of food-based dietary guidelines by Herforth et al. (2019)

It is also interesting to note that this review compared the Food-based Dietary Guidelines from these 78 countries around the globe and how closely they align their national recommendations to the official advice given by the World Health Organization as discussed previously in this manual. It is clear from the statistics that WHO dietary advice is highly influential.

- ◆ 100% align with WHO advice to consume fruit and vegetables
- ◆ 96% align with WHO advice to consume legumes
- ◆ 94% align with WHO advice to limit the intake of free sugars and total fats
- ◆ 91% align with WHO advice to limit the intake of salt
- ◆ 53% align with WHO advice to consume whole grains
- ◆ 51% align with WHO advice to consume 5 or more fruits and vegetables per day (400g)
- ◆ 36% align with WHO advice to consume nuts

Key learning points: Introduction & Chapter 1

- ◆ Fitness nutrition coaches must only provide advice and coach clients within the professional limits of their recognized scope of practice. Prescribing supplements, dictating detailed diet plans, or directing dietary intake to manage specific diagnosed health conditions should be avoided.
- ◆ All nutritional advice dispensed by fitness nutrition coaches should conform to widely accepted dietary principles.
- ◆ Be aware of the definition for the terms 'nutrition' and 'nutrients'.
- ◆ Be aware of the definition for the terms 'junk food' and 'healthy foods/diet'.
- ◆ Processed foods have been identified using 4 distinct categories as defined by the NOVA system:
 - ◆ Unprocessed or minimally processed foods
 - ◆ Processed culinary ingredients
 - ◆ Processed foods
 - ◆ Ultra-processed foods
- ◆ Consumption of ultra-processed food consumption is strongly associated with increasing obesity rates across Europe.
- ◆ The cycle of food quality provides an important, basic flow chart mapping the stages of food production and food processing that can positively or negatively affect food quality.
- ◆ The system of scoring a food according to its nutrient density compared to its calorie density is a common method of evaluating a food's potential health contribution.
- ◆ The legal requirements for labeling packaged foods, especially the nutrition information/facts and the ingredients list, provide a valuable source of information that can assist in determining the nutritional quality of a specific food item.
- ◆ National population guidelines have been created by many governments beginning in the early 1980s. As of 2019 at least 90 countries around the world have published dietary guidelines.
- ◆ The US Dietary Guidelines for Americans were the very first government nutrition guidelines and are revised and updated every 5 years.
- ◆ The World Health Organization has provided a broader set of 6 influential guidelines to direct the eating habits of global adult populations.