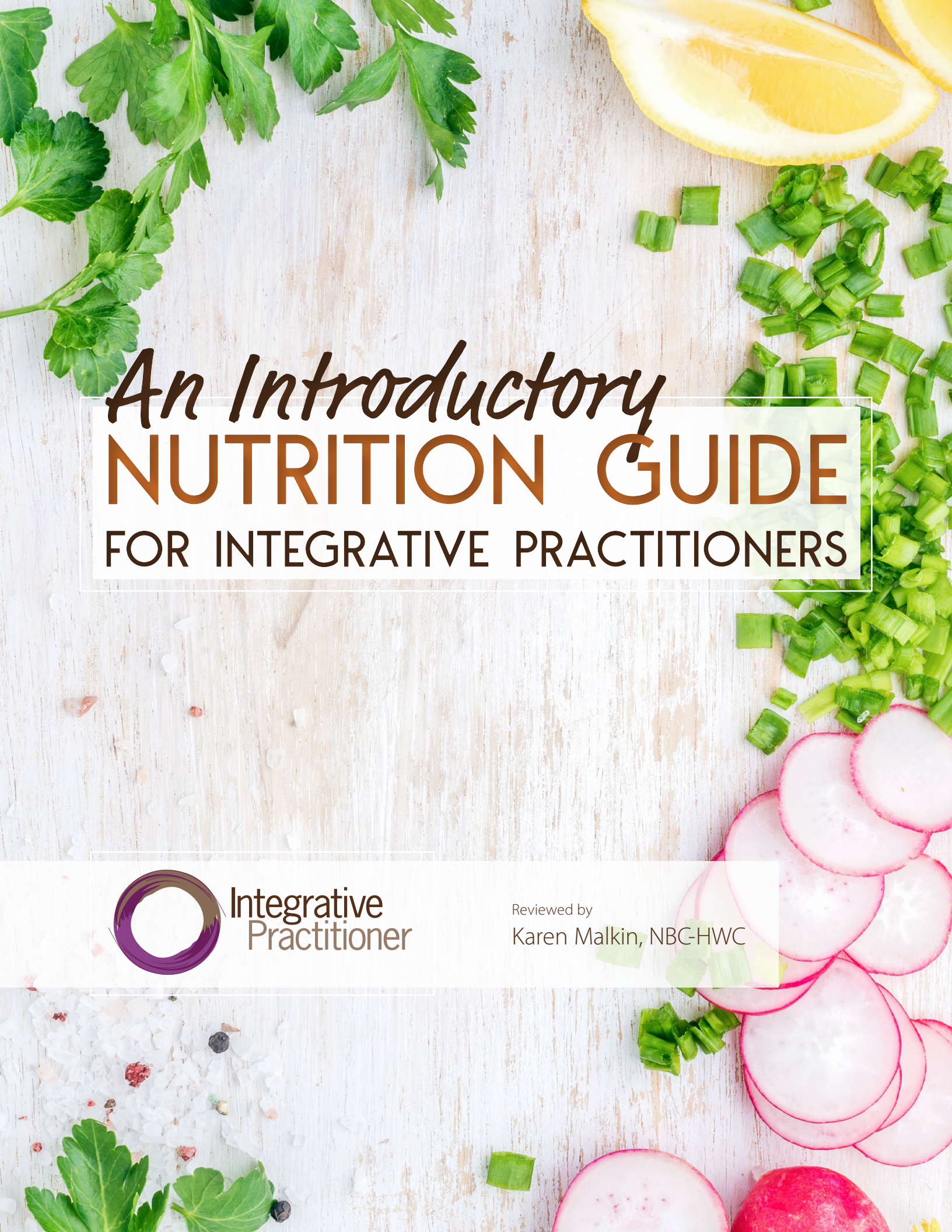

An Introductory NUTRITION GUIDE FOR INTEGRATIVE PRACTITIONERS

Integrative Practitioner

Reviewed by
Karen Malkin, NBC-HWC

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FOREWORD

I truly believe in the principles of integrative medicine. This approach puts the patient at the center of their health, focusing on the whole person—body, mind, and spirit—and celebrates bio-individuality. Furthermore, it encourages the use of coaching as an effective tool for helping people create lasting lifestyle changes. Patients who are overweight or obese know they need to eat more fruits and vegetables yet struggle to reach their health goals without support and accountability—and that's where the integrative practitioner who has coaching skills can make an impact.

Given the limited time spent on nutrition in medical school, I see this guide as an invaluable tool for clinicians who want to work more confidently with their patients around food and their health. Inside these pages, you'll find solid Nutrition 101 basics around the importance of macro and micronutrients, different types of healthy fat, quality protein, fiber, enzymes, and water consumption. You'll learn about how we digest and absorb nutrients, and the function of the gastrointestinal tract, including the role of the parasympathetic and sympathetic nervous system in supporting a healthy gut microbiome. You'll discover how fruits and vegetables that are high in phytonutrients can provide the body with some measure of disease prevention. In addition, you'll find practical meal plans, food log templates, and resources to share with your patients. The science is essential as a platform from which to build. Once you understand the science of nutrition, you can take this important work one step further.

Tools such as motivational interviewing, vision maps, and SMART Goals help open a dialogue with your patients so they can get clear about what matters most to them. When you encourage them to articulate their purpose in life, ask them thought provoking questions such as, "How do you want to show up in the world?" or "Why do you want your health?" they begin to discover their underlying motivation. This can then be tied in when counseling patients around their day-to-day choices pertaining to weight-loss. When patients contemplate a less-than-optimal food choice, they will become more aware and mindful of how these choices connect to their vision for how they want to live their lives. The choice is no longer mired in guilt or stress; it now comes from a different, more empowered and intentional place.

It doesn't happen overnight. Small steps are essential for patients to shift their mindset around food. When patients set realistic goals connected to a bigger vision for their future, it takes away the judgement. Foods become "helpful" and "not helpful" instead of "good" and "bad." While it's important to understand the science of nutrition, it's also important to create a safe space for the patient for self-exploration and personal growth. Food can be a beautiful doorway for transformation. In fact, my favorite way of getting my clients hooked on healthy eating is by encouraging them to compose plates of the highest-quality food they can afford—mostly organic, grass-fed animal protein, and colorful foods rich in phytonutrients, whole grains, and healthy fats. They are often surprised by the delicious results. When working with patients, challenge them to savor their meals by eating slowly and practicing breath work throughout. Or, perhaps get them to reframe mealtime as way of connecting with others.

This guide provides an excellent framework for deepening your nutritional expertise. You'll gain the insight needed to move the needle in a meaningful way when it comes to disease prevention and weight-loss. I hope you accept this invitation to look at food in a whole new way. I also hope this guide empowers you to empower your patients to take control of their health and feel nourished by nutrition.

— Karen Malkin, NBC-HWC

INTRODUCTION

Nutrition is the backbone of integrative medicine. A patient's diet can affect not only weight and body composition but, as a growing body of research shows, it can play a tremendous role in chronic disease prevention and treatment. With preventable lifestyle-related conditions, from obesity to heart disease, plaguing Americans in epidemic proportions, physicians across the spectrum of care must have a thorough understanding of how diets and lifestyle habits can affect both health and weight.

However, ask any physician how much time is spent on nutrition in the classroom or during residency and a striking number will recall not much. In fact, the average U.S. medical school offers only 19.6 hours of nutrition education across four years of medical school, according to a 2010 Academic Medicine report.

Another study in 2016 by Case Western Reserve University examined data from 25 family medicine, internal medicine, and OB-GYN medical residency programs throughout Ohio. They found that programs averaged about 2.8 hours of instruction on obesity, nutrition, and physical activity counseling, and only 42 percent taught residents techniques for how to perform health behavior counseling.

It's no surprise that most physicians don't make the cut when it comes to nutrition know-how. A 2016 study in the International Journal of Adolescent Medicine and Health assessed the basic nutritional knowledge of fourth-year medical and osteopathic school graduates entering a pediatric residency program and found that on average, the incoming interns answered only 52 percent of the 18 questions correctly.

There are a number of reasons why nutrition tends to fall off the curriculum, including lack of trained faculty to provide high-quality instruction and the conventional priorities of treating, rather than preventing, disease. The culture of current medicine still tends towards pharmacologic treatments, rather than lifestyle modifications.

Plus, the medical school "curriculum is crowded, and it's hard to make room for new priorities," according to Dr. David Katz, director of the Yale University Prevention Research Center, at the Integrative Healthcare Symposium in February 2017. In addition, though many physicians feel they should provide good nutritional advice, but lack of time, compensation, knowledge, and resources prevent them from conducting diet and lifestyle counseling, especially with the brief clinical visits that dominate most primary care models.

Practitioners today typically have short periods of facetime with their patients, and they are expected to offer "age- and patient-specific appropriate preventive health advice" on an endless list of issues, on top of listening to concerns the patient might have voiced and performing a standard physical exam.

Lifestyle-related chronic disease is now a major public health focus. Patients are looking for practitioners who can help them with a whole-person approach to care and a preventative approach to disease management. While physicians can, and should, certainly take a proactive approach by referring patients to registered dieticians, there is an opportunity for integrative practitioners to gain the basic knowledge they need to begin counseling patients on their diets both efficiently and effectively.

In this introductory nutrition guide for integrative practitioners, we will walk you through the basic concepts, the common misconceptions, and help you incorporate nutritional counseling in to your patient practice. This requires a shift in thinking—from the "quick-fix" mentality to a slow-and-steady approach—but, as practitioners in the integrative healthcare community, we must remain at the forefront of change in our industry. It all starts with food.

A NUTRITION OVERVIEW

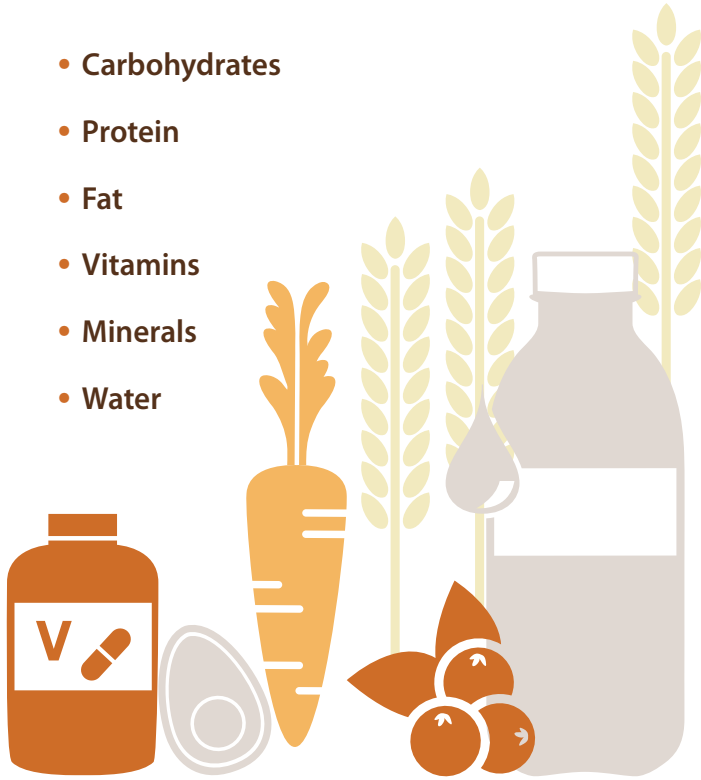
Let's go back to those early days of biology, anatomy, and physiology instruction and talk about the gastrointestinal tract. The primary function of the gastrointestinal tract is to provide the body with nutrients, water, and electrolytes from the food we ingest. When food moves through the gastrointestinal tract, it is broken down into small units that can be absorbed in digestion. Absorption, the transport of nutrients from the intestine into the blood or lymph system, takes place in various parts of the gastrointestinal tract for different nutrients.

The gastrointestinal tract is a long tube-like structure that reaches from the mouth to the anus and includes the esophagus, stomach, small intestine, large intestine, rectum, anus, and several accessory digestive organs and glands such as the salivary glands, gallbladder, liver, and pancreas. In this six-to-eight meter tube, food is digested and nutrients are absorbed. The mouth, stomach, pancreas, and gallbladder have a predominantly digestive function, and most of the absorption occurs in the small and large intestine. After absorption, most nutrients are transported to the liver, and from there they enter the main circulation.

The gastrointestinal tract is innervated by both the sympathetic and the parasympathetic components of the autonomic nervous system. Parasympathetic stimulation stimulates motility. The vagus nerve is the source of parasympathetic activity in the esophagus, stomach, pancreas, gallbladder, small intestine, and upper section of the large intestine. The lower portion of the large intestine receives parasympathetic innervation from spinal nerves in the sacral region of the spine. Autonomic regulation, which is extrinsic to the gastrointestinal tract, is overruled by intrinsic modes of regulation. Sensory neurons in various parts of the gastrointestinal tract have their cell bodies in the gut wall, but are not part of the autonomic nervous system.

THE SIX BASIC *Nutritional Categories*

- **Carbohydrates**
- **Protein**
- **Fat**
- **Vitamins**
- **Minerals**
- **Water**



Hormonal regulation also plays a role in this process. Endocrine glands secrete hormones into circulation, while paracrine glands or cells secrete products that influence the secretion of another product discharged by a local gland or cell. Substances within the tissues of the gastrointestinal tract and hormones released by organs in the gastrointestinal tract affect secretion and motility.

Digestion starts the moment food is ingested and may take four to six hours to complete. Specific enzymes are responsible for the digestion of different macronutrients.

Absorption of nutrients across the intestinal walls occurs either by active transport or by simple diffusion. Active transport requires energy and usually takes place against a concentration gradient or an electrical potential. Active transport often requires specialized carrier proteins. Diffusion is the movement of substances across a membrane along, rather than against, an electrochemical gradient. Simple diffusion does not require transport proteins or energy in the form of ATP, but many nutrients are transported by facilitated diffusion, which requires a protein transporter or channel.

Energy and nutrients are found in foods, and learning to select, prepare, and consume foods can be a positive experience for patients. It can be tempting to think of food intake as simply "food." However, we want to redirect our patients' focus to understand the nutrients in their food as well.

There are six basic categories of nutrients needed for humans:

- **Carbohydrates**
- **Protein**
- **Fat**
- **Vitamins**
- **Minerals**
- **Water**

The way we create or obtain the correct amount of each category is different. These nutrients can be classified as essential or nonessential. Essential nutrients are any nutrients that the body cannot make by itself. Non-essential nutrients can be synthesized by the body from other precursors. The body needs all of these for various functions.

Each of the categories listed above can also then be broken down into more specific nutrients, including:

- **Amino Acids**
- **Vitamins A, B6, D, C, and B12**
- **Minerals: Iron, Potassium, Calcium, Sodium, Chloride**

Foods that are rich in essential nutrients are plentiful in most parts of the world. A balanced eating plan is one way we can supplement these essential nutrients for the body. It is also possible to provide your body with all the essential nutrients through vitamin and mineral supplements, but getting these nutrients is generally better when they can be sourced from real, whole foods.

The concept of essential nutrients grew out of speculation that some diseases occurred in populations where dietary recommendations were not followed or even provided. The proof of this theory revealed data on foods that could prevent disease. Nutrients in food that prevent diseases or health problems were then classified as essential nutrients, and nutrients that could be removed from the diet without adverse health effects were classified as nonessential nutrients. A nutrient can be physiologically essential but classified as nonessential if the nutrient can be naturally synthesized.

Although all nutrients are important for growth and good health, they do not all need to come strictly from the diet. To be able to classify a nutrient as essential requires careful scientific examination. By definition, "a nutrient is considered essential if its removal from the diet results in signs and/or symptoms of a deficiency and disease and if these signs can be prevented only by the nutrient itself or by a precursor to the nutrient."

Carbohydrates

Perhaps the most controversial of macronutrients, carbohydrates fulfill several roles in human physiology. The body's priority is to make sure that the brain has sufficient glucose to function and provide energy for muscular work. Without proper carbohydrate intake, the ability to make glucose can still occur, but is derived differently than when glucose is taken in or absorbed and assimilated from ingesting carbohydrates.

Adults need 45-65 percent of their total calories from carbohydrates. Focus on fiber, not the carbohydrates. Consuming a variety of bright, colorful fruits and vegetables is recommended. The body can make glucose from non-carbohydrate sources in a process called gluconeogenesis, therefore carbohydrates are not considered essential or nonessential. If there is not enough carbohydrate converted to glucose for energy, the body will tap into other systems to make this substance. After fasting, when carbohydrates have been restricted, glucose is made from fats and proteins, even if not in the GI tract at that time. This relatively efficient design works to provide a stable and constant source of energy for the body.

A carbohydrate is one type of natural organic substance that includes sugars, starches, and cellulose. The molecular composition of carbohydrates is formed in combinations of carbon, hydrogen, and water.

Carbohydrates can be classified into four major groups:

- **Monosaccharides**
- **Disaccharides**
- **Oligosaccharides**
- **Polysaccharides**

Monosaccharides, or simple sugars, are molecules that usually contain five or six carbon atoms. The three most common monosaccharide carbohydrate types include glucose (also called dextrose), fructose (the sugar in fruit), and galactose. Disaccharides are different in their molecular structure as they are composed of two simple sugar molecules and are therefore sometimes referred to as "double sugars." These include sucrose, lactose, and maltose. Oligosaccharides are carbohydrates with three to six monosaccharide units and are less common.

Many oligosaccharides are the result of breaking down polysaccharides. Most naturally occurring oligosaccharides are found in plant foods and include raffinose (a trisaccharide), which consists of melibiose (galactose and glucose) and fructose. Polysaccharides, including cellulose, starch, and glycogen, are much larger molecules and comprise up to 10,000 monosaccharides. Most of the stored carbohydrates from nature occur in the form of polysaccharides.

Complex carbohydrates are derived from plants that contain both starch and dietary fiber. This includes vegetables, potatoes, dried beans, grains, and fruits. Complex carbohydrates should be the greatest part of the daily intake for your patients.

The two most well-known polysaccharides are cellulose and starch. Cellulose, the basic structural material in plants, contains more than 3,000 glucose molecules. We consume cellulose in the form of insoluble dietary fiber. Starch refers to a class of plant-based polysaccharides made up of units of glucose. Starches typically comprise a combination of two substances, amylose and amylopectin.

Humans metabolize starch in our digestive system in stages. First, digestive enzymes called amylases convert the starch into maltose. As maltose is absorbed through the walls of the intestine, it is hydrolyzed to glucose and distributed to cells and muscles for energy or stored as glycogen or fat.

Even though carbohydrate intake is vital, a lot of popular diets used by patients may try to restrict carbohydrate intake. In reality, the body needs carbohydrates. Practitioners can help their patients understand the differences between carbohydrate types and the timing of their intake. No diet should eliminate carbohydrates, as they are a vital source of energy, fiber, and vitamin C.

There are two types of carbohydrates, simple and complex. Simple carbohydrates are rapidly converted to glucose, so there is no real chance for the body to use them for sustainable energy. Complex carbohydrates are derived from plants that contain both starch and dietary fiber. This includes vegetables, potatoes, dried beans, grains, and fruits. Complex carbohydrates should be the greatest part of the daily intake for your patients.

Fiber

Fiber is a type of carbohydrate found in plant foods, and has been shown to reduce risk of chronic conditions such as heart disease, diabetes, and irritable bowel syndrome. Unlike other forms of carbohydrates, the body can't digest fiber—it simply passes through, performing key functions in the body.

There are two types of fiber, soluble and insoluble. Soluble fiber dissolves in water and slows the digestion of glucose, and can lower blood sugar levels and help lower blood cholesterol. Insoluble fiber absorbs water, but does not dissolve in water, and helps move food and waste through the digestive system.

To get the full benefits of fiber, plant foods must be eaten in their whole form, when possible. Good sources of soluble fiber include apples, bananas, berries, dark leafy greens, legumes, nuts, and oats. Insoluble fiber includes cucumber, tomato, bran, seeds, and whole grains.

Most recommendations suggest adults consume 25-35 grams of fiber per day, though the majority of adults in the U.S. consume half that amount. To incorporate more fiber, aim for five to 10 servings of fresh vegetables per day, incorporate fruits and vegetables into every meal and snack, and choose whole grains whenever possible.

Protein

Protein is a nutrient that is critical to both the structure and function of the body. It is an essential component of the diet because it provides the amino acids the body needs to synthesize its own proteins. In traditional nutrition textbooks, we typically learn the two types of amino acids: essential amino acids and non-essential amino acids.

Essential amino acids are amino acids that our body cannot synthesize, and therefore must be obtained from the diet. The eight essential amino acids are isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.

Nonessential amino acids have traditionally been defined as those that the body can manufacture. It is therefore not necessary to obtain these amino acids from the diet. The nonessential amino acids include glutamate, alanine, aspartate, and glutamine, as well as arginine, proline, serine, tyrosine, cysteine, taurine, and glycine.

The body is only able to make the protein it needs when there are sufficient quantities of all the necessary amino acids. If we are deficient in essential amino acids, the body is unable to make proteins and will be required to break down muscle proteins to obtain the amino acids it needs. Our daily intake of food must contain each of the essential amino acids, which can be accomplished by eating a variety of vegetables, beans, whole grains, nuts, seeds, and meat and animal products, if desired.

Protein, providing four calories per gram, is an important source of energy for the body, when carbohydrates and fats are not available. In addition to using protein to generate energy for cellular function whenever necessary, the body uses the amino acids contained in the protein we eat to manufacture its own proteins. The proteins synthesized by the body perform a variety of important physiological functions:

- **Production and maintenance of structural proteins**
- **Production of enzymes and hormones**
- **Production of transport proteins and lipoproteins**
- **Production of antibodies**
- **Maintenance of proper fluid balance**

The average protein consumption for an adult in the U.S. is 100 grams per day, but patients will most likely need a little more than that, depending on the individual metabolic demands.

Plant vs. animal protein

The type and quality of protein makes a difference when it comes to health. For example, a six-ounce steak has 38 grams of protein, but it also contains 44 grams of fat, with 16 grams saturated fat. For most people, that's almost three quarters of the recommended daily allowance for saturated fat. On the other hand, six ounces of salmon provides 34 grams of protein and only 18 grams of fat. A cup of cooked lentils has 18 grams of protein and less than one gram of fat.

Unlike animal products, plant proteins may not contain all essential amino acids, though a varied vegetarian diet with a mixture of proteins consumed is possible. Practitioners can coach patients on choosing the best proteins, specifically looking at how much fat is present and whether or not it is saturated.

Fats

As healthcare professionals, we know there is a lot of misunderstanding about fat as a macronutrient. Like carbohydrates, fats have been blamed for decades as the culprit behind the obesity epidemic. But once fat is more clearly understood, it becomes easier to sort through some of the confusions.

Fat is something that practitioners can easily analyze, assess, and identify within their patient's personal food intake or diet since there is usually more than enough of it consumed each day. Therefore, we may suspect that our patients know very well when they are consuming a high fat meal, but they either haven't learned which fats are healthy fats, how to cook with less fat or a healthy amount of fat. Obesity and high blood pressure are also affected by the excessive intake of poor quality fats.

> Fats provide energy and are critical to cell membrane and function. They are the building blocks and regulators of many hormones.

Since health is affected by the type of fat consumed, it is important to know more about the quality. In addition to protein, fat is also an essential macronutrient, as the body does not synthesize all types needed for physiological function, and therefore these fats must be taken in through food.

Fats provide energy and are critical to cell membrane and function. They are the building blocks and regulators of many hormones. Fats impact skin health and help regulate body temperature. They protect, insulate, and support internal organs.

Fats or fatty acids all have a similar structure, a carbon backbone with hydrogen atoms arranged in varied concentrations along the carbon chain. Based on the number of hydrogen atoms attached, we rank fats as saturated, monounsaturated, and polyunsaturated.

Saturated fats are solid at room temperature. Monounsaturated fats are called such because there is one slot along the carbon backbone or chain that can accommodate a hydrogen molecule. This type of fat is liquid at room temperature, like olive oil and canola oil. Polyunsaturated fats have several open slots along the carbon chain and are also liquid at room temperature. This group includes flax seed oil and fish oils.

Trans-fats are more problematic. The process of hydrogenating food creates trans-fat. During this process, an unsaturated fat item is combined with hydrogen atoms. These atoms then bind to the carbon backbone or chain to change the properties of the molecular structure, making the fat solid at room temperature instead of liquid.

Food labels are changing regarding disclosure of trans-fats. Until recently, amounts under a certain threshold allowed the label to state that the food item was "trans-fat-free," when there were hydrogenated items listed on the ingredients list. Coach your patients to read labels and look for the word "hydrogenated" on food labels and to avoid trans-fats entirely. Even in small amounts, this type of fat is correlated with adverse effects on cholesterol, triglycerides, and insulin levels.

The body can only obtain omega-3 and omega-6 polyunsaturated fatty acids through the diet. Due to their role as precursors of other fatty acids that the body cannot synthesize, they have been termed essential fatty acids. About 1-2 percent of the total energy intake should come from linoleic acid. For an average 2,500 calories per day intake, this is about one tablespoon of plant based oil per day. Foods such as mayonnaise, cooking oils and salad

dressings, whole grains, vegetables, and other foods readily provide this amount for us. Fatty fish such as salmon, tuna, and sardines provide the best sources of alpha- linolenic acid or its related omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA).

Fat intake should comprise no more than 35 percent of total calories. Within that 35 percent, approximately one-third come from each of the different types of fat—saturated, monounsaturated, and polyunsaturated. If an individual needs to decrease fat intake, this reduction should come primarily from saturated fat foods.

Vitamins and Minerals

Vitamins are needed for almost all reactions that occur within the body. While vitamins and minerals do not supply energy directly for the body to use, they are both necessary in energy metabolism.

There are two types of vitamins:

- **Fat-soluble, including vitamins A, D, E, and K.**
- **Water-soluble, including vitamins C and the B complex vitamins**

Vitamins are organic compounds that are needed in small quantities in the diet. They are essential for specific metabolic reactions in the body and for promoting normal growth and development. With the exception of vitamin D, which can be synthesized in the presence of sunlight, vitamin K, and small quantities of select B vitamins, which can be produced by the bacterial microflora of the gastrointestinal tract, vitamins are not produced by the human body and must be consumed in the diet.

A mineral is an inorganic compound found in nature, and the term is usually reserved for solid compounds. In nutrition, the term "mineral" usually refers to the dietary constituents essential to life processes. Minerals are classified as macro-minerals or micro-minerals or trace elements, based on the extent of their occurrence in the body and the amounts needed in the diet. The seven macro-minerals are potassium, sodium, chloride, calcium, magnesium, phosphorus, and sulfur, and each constitutes at least 0.01 percent of total body mass.

Inadequate mineral nutrition has been associated with a variety of human diseases, including anemia, cancer, diabetes, hypertension, osteoporosis, and tooth decay. Thus, appropriate dietary intake of essential minerals is necessary for optimal health.

Some minerals, such as calcium and phosphorus, are the building blocks for body tissues, including bones and teeth. A number of minerals, including magnesium, copper, and zinc, are essential for the normal function of enzymes that are involved in the regulation of metabolism, and some minerals, such as iron and zinc, have an essential role in the functioning of immune cells. Several other minerals—sodium, potassium, and chloride—exist as ions or electrolytes dissolved in the intracellular and extracellular fluids. Like vitamins, minerals cannot be used as a source of energy.

Phytonutrients or phytochemicals are components of plants that promote human health and prevent disease. Fruits and vegetables are rich sources of phytonutrients,

Supplementation

Should your patients take a multivitamin/multi-mineral? Only you and the patient can determine that, and if you find yourself having discussions about vitamins or other supplements, your patients will expect you to know how to guide them with good coaching skills and strong knowledge of supplements in general. Not all multivitamin/multi-mineral supplements are created equal—quality is crucial. Clinicians may visit The National Library of Medicine website for the nutrition label database by brands linking to studies on particular supplements, what's in it, studies, and adverse effects. Certain medical conditions and medications make it necessary for some people to supplement with micronutrients.

along with whole grains, legumes, herbs, spices, nuts, and seeds. They differ from vitamins because they are not considered an essential nutrient, meaning that without them people will not develop a nutritional deficiency.

The many types of phytonutrients can be divided into different classes, with the most well-known of these being the carotenoids, found in carrots, broccoli, leafy green and yellow vegetables, spinach, and other vegetables; and polyphenols, found in various berries, fruits, and wine.

By consuming a variety of fruits, patients will satisfy recommended intake values and experience the benefits to consuming carotenoids and other disease protecting foods.

Eat the Rainbow

Starting with color is the first basic step to make when developing a healthy way of eating for everyone. It is foundational to all food plans within functional medicine, as plants are good medicine for chronic disease prevention and treatment. Different colors contain different phytonutrients, each with its own set of health benefits. To promote optimal health, it is important to eat fruits and vegetables of varied colors each day. Aim for 1-2 servings of each color—red, orange, yellow, green, blue/purple/black, and white/tan/brown.

Probiotics and Prebiotics

The digestive tract is home to more than 500 species of bacteria, comprising about 100 trillion bugs altogether. Collectively, they are tremendously important for overall health. They help digest food, synthesize certain vitamins, and play a vital role in immune defense. These bugs also act as a barrier to help our bodies filter and appropriately absorb nutrients from what we eat.

Our bodies constantly replenish these "good" bugs, known as probiotics. However, probiotics also need nourishment to help them grow. These are known as prebiotics, fiber-rich foods that probiotics feed and grow on. When probiotics break down prebiotic food, they produce butyric acid, which fuels cells that line the colon, acidify the environment, and make it more difficult for harmful bacteria to survive.

The two main probiotic forms of bacteria in the digestive tract are Lactobacilli and Bifidobacteria. These can be taken as a supplement or in the diet in the form of probiotic-rich fermented foods, like kimchi and kombucha, or dairy products, like kefir and raw, unpasteurized yogurt. General recommendations call for ingesting 1 to 25 billion colony-forming units (CFUs) daily, and must contain active, live cultures. Prebiotic foods include asparagus, bananas, garlic, honey, peas, and whole grains.

Water

Water is an important nutrient, and it accounts for 50 to 60 percent of overall body mass. Lean body tissues, including the heart, liver, and muscle, are about 72 to 75 percent water by mass, whereas adipose and fat tissue is about 5 percent by mass. Therefore, it is crucial to emphasize the importance of regular fluid consumption.

Water intake comes from drinks and food. Some foods, especially plant material, have high water content. Water in food, in fact, makes a major contribution to total water intake. Water is also produced internally from the catabolism of carbohydrate, fat, and protein. In the complete oxidation of one molecule of glucose, six molecules of carbon dioxide and six molecules of water are produced. In a sedentary individual, metabolic water production amounts to about 300 milliliters per day, although most of this water is lost in expired gas, because the oxidizing fuel in the body generates carbon dioxide, which stimulates breathing and hence increases respiratory water loss.

MAKING SENSE OF CONSUMER GUIDELINES

In the United States, Dietary Guidelines for Americans provide the source for nutrition advice. Published every five years for public health professionals, each edition incorporates the latest body of nutrition science and research. The recommendations help the general population make healthy food and beverage choices and serve as the foundation for vital nutrition policies and programs across the United States. Practitioners should keep the guidelines in mind, but know that the individual needs of patients will vary.

The Joint U.S. and Canadian Dietary Reference Intake Working Group is a collaborative effort with the National Academies of Sciences, Engineering, and Medicine to develop guiding principles for inclusion of chronic disease endpoints to be used by committees setting future DRIs. The report was released in August 2017, and completely refreshed guidelines will be available in 2020.

Research on nutrition identified certain nutrients that are essential for optimal health. Based on this research, organizations and government agencies around the work developed dietary recommendations so populations can stay healthy.

The Institute of Medicine (IOM), Food and Nutrition Board (FNB) of the National Academy of Sciences have revised the methods used when making nutrient recommendations to the general population. The Dietary Reference Intakes (DRIs), having replaced the former Recommended Dietary Allowances (RDAs), were developed by scientists from both Canada and the United States. One of their goals was to provide guidelines that reflect the growing body of scientific evidence suggesting that chronic disease states may alter nutrient requirements.

The DRIs include a family of reference values:

- **Estimated Average Requirement (EAR)**
- **RDA**
- **Adequate Intake (AI)**
- **Tolerable Upper Intake Level (UL)**

These values are determined in a manner that is intended to not only to prevent nutrient deficiency diseases, but also to reduce the risk of chronic diseases through improved nutrition.

Nutrient Recommendation Terminology

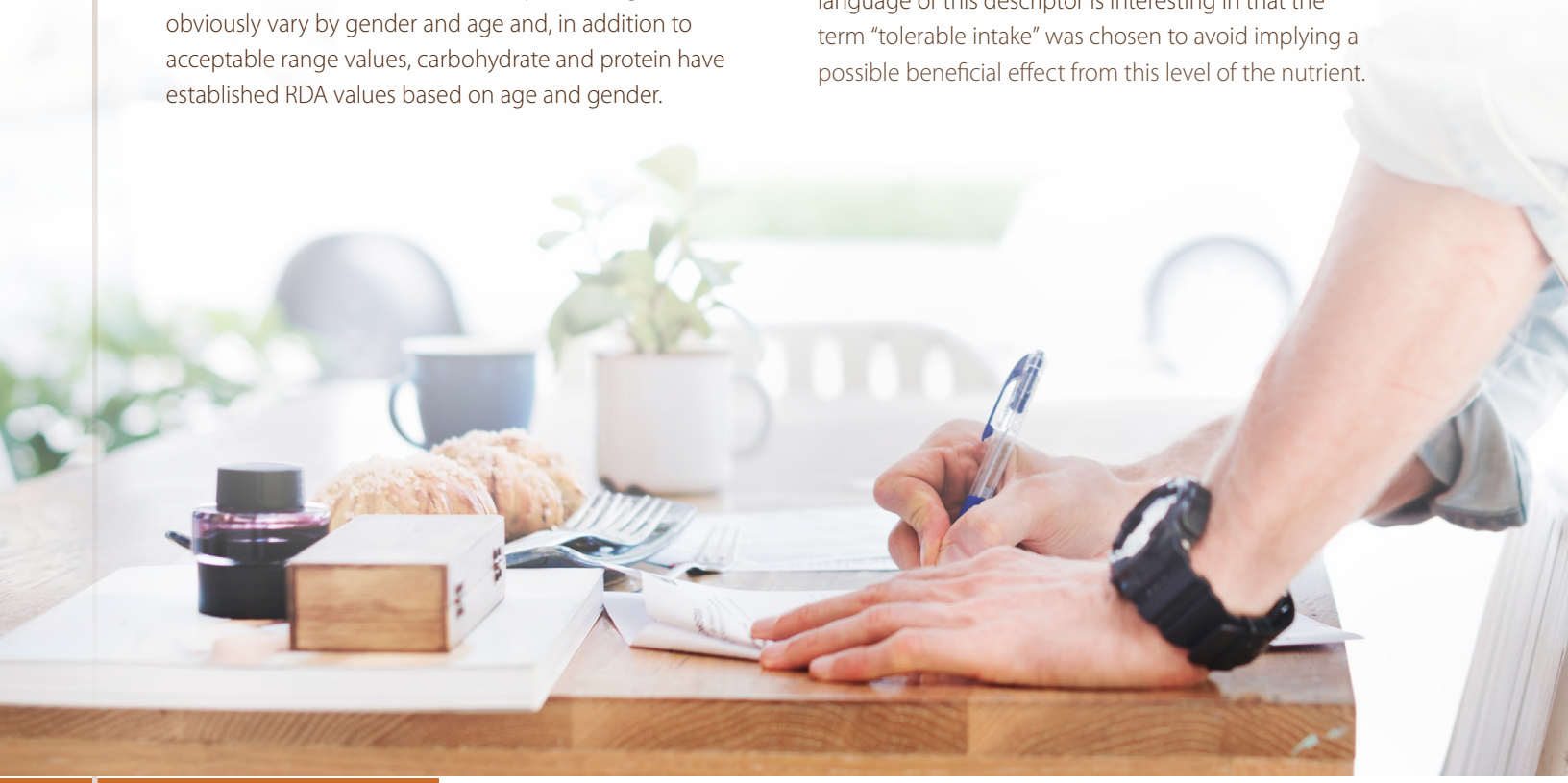
RDA (Recommended Dietary Allowance): Defined as the intake that meets the nutrient requirement of almost all (97.598 percent) of the healthy individuals in a specific age and gender group, the RDAs can help people achieve adequate nutrient intake to decrease risks of chronic disease. Values for RDAs are estimates of average requirements plus increases to account for variations within a particular group.

AI (Adequate Intake): To date, DRI committees have set AIs for vitamin D, vitamin K, chloride, fluoride, pantothenic acid, biotin, choline, calcium, chromium, manganese, potassium, and sodium. The AI values come from experimental or observed intake levels that appear to sustain positive indicators of health.

AMDR (Acceptable Macronutrient Distribution Ranges): When considering essential fatty acids, protein, and carbohydrates, ranges have been established in support of RDI recommendations, and these are known as the AMDR. Acceptable ranges will obviously vary by gender and age and, in addition to acceptable range values, carbohydrate and protein have established RDA values based on age and gender.

EAR (Estimated Average Requirement): The EAR is defined as the nutrient intake value that is estimated to meet the requirement of half of the individuals in a specific group or population. This figure is also used as a basis for developing the RDA. Nutrition policy experts use EARs to evaluate the adequacy of nutrient intakes of a group and to predict and suggest how much the group should be consuming.

UL (Tolerable Upper Intake Level): The Tolerable Upper Limit (UL) is defined as the maximum intake by an individual that is unlikely to pose risks for adverse health effects to almost all healthy individuals within the general population. The greater intake continues above the UL, the greater the risk of adverse effects. The UL is not intended to represent a recommended level of intake and there is no proven benefit seen in research related to consuming nutrients at levels above the RDA or AI. For most nutrients, the UL refers to total nutrient intake from food, fortified food, and supplements. The language of this descriptor is interesting in that the term "tolerable intake" was chosen to avoid implying a possible beneficial effect from this level of the nutrient.



A Balanced Diet

What does it mean when we say that a diet should have "balance?" The term "balanced diet" is often quoted by nutritionists and dietitians, yet most have little idea of its meaning or, if they do, they often lack the skills needed to change their diet so that it is more balanced. To help consumers with dietary guidelines, the U.S. Department of Agriculture (USDA) and the Department of Health and Human Services (USDHHS) initially developed the Dietary Guidelines for Americans and the Food Guide Pyramid as a point of reference.

The Dietary Guidelines for Americans have evolved over the last 15 to 25 years. Most practitioners are familiar with the now defunct food pyramid. The pyramid used before the late campaign in the United States had its strengths and weaknesses. It provided a way to quickly review the individual dietary intake of the user and then recommend dietary changes that combined food preferences with specific energy and nutrient needs. Variations of Food Guide Pyramids are still in use today.

Today, the USDA touts its MyPlate illustration, which shows the five food groups thought to be the building blocks for a healthy diet, laid out on a plate. The idea is to visualize how the portions and proportions of each food group that should be consumed at each meal.

These visual aids can be very useful when educating patients on a balanced diet. However, as Mark Hyman, MD, founder and medical director of the UltraWellness Center, advocates, the guidelines can be influenced by finances, so practitioners should apply their scientific knowledge and common sense when developing individualized eating strategies for their patients. Practitioners may also consider designing their own visual guides—Hyman created his own food pyramid, for example, that he regularly uses to counsel patients.

Reading Food Labels

The nutrition facts listed on food labels are a useful tool when navigating the often daunting aisles at the grocery store. Practitioners and patients can work together to understand the information available on the food labels, from the calories, to the number of servings, to the nutrient content of packaged foods.

Reading food labels can help patients make healthy choices when grocery shopping. The first step is to always check the serving size. The nutritional information on the label is based on the serving size, and many packages—including those that look like single serving packages—contain more than one serving.

Calorie information shows the number of calories in one serving. This number can be adjusted should the patient eat a smaller or larger portion. While a healthy diet is about much more than calories, patients should understand this number as it helps determine how calorie dense foods may affect their weight.

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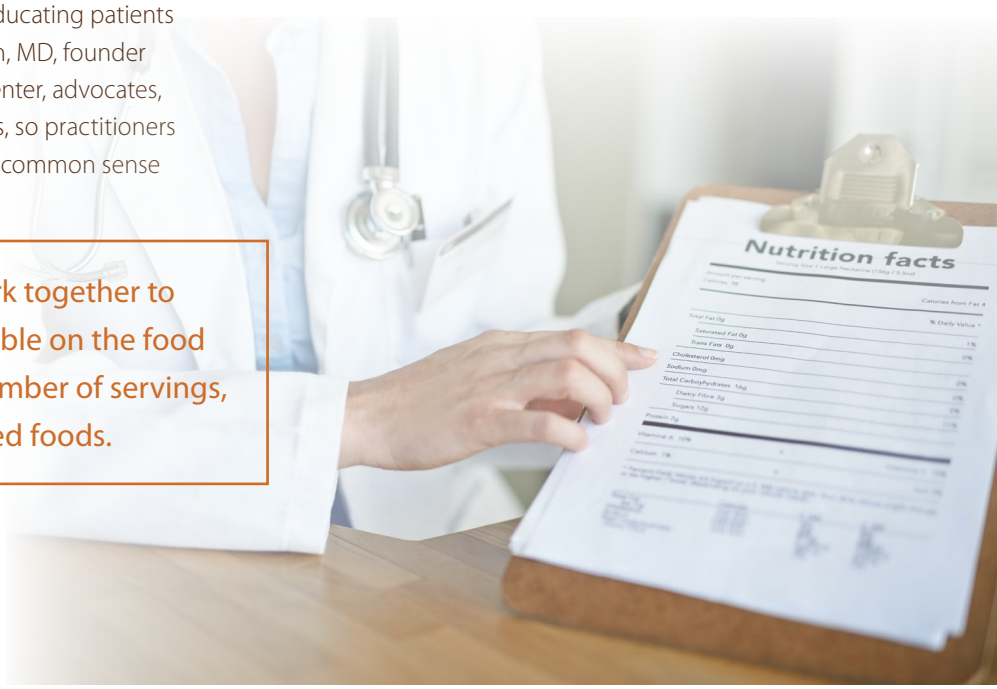

The total carbohydrates are listed in bold letters and are measured in grams. Sugar, starch, and dietary fiber make up this number, though sugar is listed separately. This number can help patients understand the affect the food will have on their blood sugar, which is particularly helpful when working with diabetic patients. Dietary fiber is listed below the total carbs. Encourage patients to buy foods with higher amounts of fiber.

Next, check the total fat in one serving, paying special attention to the amount of saturated fat. Avoid foods high in saturated fat and be cognizant that food manufacturers don't have to list saturated fat content that is less than 0.5 grams.

Sodium, the main ingredient of salt, may be important for patients who need to consume less salt in their diet. If a label says the food has 100 milligrams of sodium, it has roughly 250 milligrams of salt. The American Heart Association recommends no more than 2,300 milligrams per day, with an ideal limit of no more than 1,500 milligrams per day for most adults. For perspective, one tablespoon of regular soy sauce has 879 milligrams of sodium.

Food labels also include the % daily value, which is meant to serve as a guide based on a 2,000 calorie a day diet. However, work with patients to set their own nutrition goals and what individualized percentages they should aim for.

Lastly, help patients understand how to read ingredients lists. Ingredients are listed in order of predominance, with the ingredient used in the greatest amount first, and followed in descending order by those in smaller amounts. However, some ingredients go by names other than what we expect, so it's important to coach patients on what to look for. Sugar and sodium, in particular, have many "disguises". Sugar can also be listed as high-fructose corn syrup or corn syrup, agave nectar, barley malt syrup, or dehydrated cane juice, to name a few, and sodium can include salt, sodium benzoate, disodium, or monosodium glutamate (MSG).

Trans-fats are not included with the total fat, so patients will need to look out for these in the ingredients list, too. Ingredients that contain trans-fats are "hydrogenated," so stay away from products with partially hydrogenated oil and hydrogenated oil, for example, listed.

Some experts recommend the "five-limit rule," meaning choose foods with five or fewer ingredients. However, reading food labels does not have to be complicated. Whole foods are always preferable but work with patients to make smarter choices with packaged items. When in doubt, if the patient can't pronounce it or doesn't recognize an ingredient listed, advise them to find another option. In addition, advise patients to shop the perimeter of the grocery store for fresh, whole foods.

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ASSESSING PATIENTS

With a foundational knowledge, practitioners can begin to work with patients. The first step is to assess their needs, goals, and current health status, which may differ for practitioners who have worked with their patients previously.

When beginning to work with a nutrition patient, a food log is helpful in assessing their food intake. In a general sense, consider analyzing food logs more so in the beginning. This will tell you a lot about their current eating norms. If patients continue to need more intensive scrutiny of their food logs, then you can continue consulting with them.

If your patient begins to show compliance and results rather quickly, you may not feel compelled to check food logs every week. Food logs can be tedious to keep and analyze. To make things easier, you will want to be sure that your patient is clear on what information needs to be included in their food logs.

Items included on food logs should be clarified if there are any questions. Often, people will put down food descriptors that require follow-up. Investing the time in making the instructions clear and up-front can expedite the process. Generally, food logs should include the following:

- **Food item**
- **Portion size**
- **Time of day**
- **Homemade, store-bought, or restaurant?**
- **Any food labels attached?**
- **Any comments on emotional status**

Once your patient has done several food logs, review actual intake totals with what was designed in their eating strategy. Take the time to set goals for the next week. If you can, experiment with having your patients commit to one or two small changes between appointments and, in this way, you positively reinforce a good behavioral goal.

Practitioners may also need to assess patients' body composition, especially if their goal is weight loss. Body fat, in the ideal range, informs the practitioner as to the general health status of their patient and, as such, plays an important role in the health and fitness goals of all individuals.

Many options exist to assess human body composition. Of the simpler methods, the popular height–weight tables have become a frequently used standard in the medical community, or for insurance purposes. But to assess overweight and obesity status accurately and properly, practitioners should know more. Using Body Mass Index (or BMI) is one way we can assess our patient's body composition. Patients are encouraged to keep our BMI under 24.9 to optimize health and to prevent the onset of chronic diseases brought on by obesity.

Unfortunately, use of BMI alone is of limited usefulness to practitioners, since "overweight" and excess body fat does not necessarily mean the same thing. A better alternative would be to determine body composition and this is done by assessing body fat. Body fat can be measured in a number of ways:

- **Hydrostatic weighing**
- **Skinfolds**
- **Girths**
- **Bioelectrical analysis**
- **Dual energy x-ray absorptiometry**

When body fat measures are available, it becomes possible to more accurately place body fat (BF) level on a continuum from low to high, independent of body weight. The American College of Sports Medicine sets the standards of body composition as follows:

- **Ideal:** 16-19 percent BF for females; 11-13 percent BF for males
- **Obese:** Greater than 32 percent BF for females; greater than 25 percent BF for males

You may be asking yourself, what is "ideal" or what does "average" mean? How does it relate to your patients? This is where your coaching skills will lead you down a path of discovery about your patients. Using compelling questions and intuition, you can dig deeper with patients about the "why" behind their goals, especially when your intuition tells you that a patient may have unrealistic goals in mind.

An Integrative Approach

As integrative professionals, it is our job to go beyond the numbers and comprehensively assess a patient's body, mind, and spirit. This will allow us to identify what the patient's goals are for their health and their overall vision for their wellbeing. A standard coaching approach incorporates:

- **Vision MAP**
- **Core Areas**
- **SMART Goals**

Integrative Practitioner

Encourage patients to be as open as possible when answering these and other related questions. The key is to understand what your patient wants to accomplish, so nutrition guidance can work with their ideal lifestyle and set them up for success in all areas of life. A focus on self-care is important, as it will allow the patient to develop health habits and heal from the inside out.

We must also evaluate a few Core Areas, including sleep, movement, nutrition, relationships, resiliency, spirituality, and environment.

Vision MAP

A vision MAP (mission, aspiration, and purpose) will help you and your patient discover their hopes for health and wellbeing. During an initial visit or assessment, give patients time to ponder a few questions centered on their vision, including:

- **What do you love about your life?**
- **How do you want your life to be?**
- **What do you want to accomplish in life?**
- **What is your life purpose?**
- **What are your dreams? Aspirations?**
- **Why do you want to be healthy or healthier?**
- **What self-care do you currently engage in?**
- **How can you take better care of yourself?**
- **Why do you want to take better care of yourself?**

Based on their current state during their visit with you, on a scale of 1-10, have the patient rank how satisfied they are with the following areas of their life:

1. **Consistently getting adequate restful sleep**
2. **Being active**
3. **Eating whole, non-processed, nutritious food**
4. **Interacting respectfully with ourselves and others**
5. **Practicing stress protective activities**
6. **Acknowledging and honoring values and beliefs about ourselves and the world**
7. **Managing our physical surroundings**

Based on these rankings, have the patient list the areas to prioritize, improve, and maintain. Areas with a 4 or less should be a high priority, 5-7 moderate priority, and 8-10 continue to maintain.

Lastly, when assessing patients, help them develop a SMART goal, which stands for Specific, Measurable, Attainable, Relevant, and Timely. Work with the patient to set a goal for their health and wellbeing and include all of the elements of SMART so it is effective.

Follow up with patients on their vision MAP, core areas, and SMART goal to check progress and reevaluate if goals or needs change. Assessment should be an ongoing and collaborative process to help patients achieve optimal health.

With all of the various dietary lifestyles and fads touted in today's mass media, how can practitioners know what to recommend for their patients? Well, there's one thing just about everyone can agree on—eat real food. Real, whole foods should be the basis of every eating strategy.

COMPONENTS OF A HEALTHY DIET

Dr. Hyman says integrative practitioners should promote a diet that not only avoids harmful ingredients, but promotes an ethical consumer market, promotes the preservation of the environment, and considers studies that show how sugar and processed foods impact cognitive and behavioral abilities in children in adults. In general, this means:

- **Avoiding processed foods, refined sugar, refined carbohydrates, and refined oils**
- **Avoiding factory farmed animals**
- **Avoiding food that contributes to climate change and environmental degradation**
- **Avoiding foods that affect kids ability to learn, threatens national security, or promotes violence and poverty, like sugar and heavily processed foods**
- **Avoiding additives, artificial ingredients, hormones, pesticides, antibiotics, and genetically modified organisms (GMOs)**

Work with patients by focusing on what they can eat, rather than what they can't. A balanced diet is the best way to stay healthy, maintain a healthy weight, and prevent or manage chronic disease. This includes adequate intake of the three main macronutrients—carbohydrates, protein, and healthy fats—as well as a variety of vitamins, minerals, fiber, and water.

Based on what we know so far and what we've reviewed earlier in this e-book, the best diets incorporate whole, real foods, mostly plants when possible. A variety of fresh fruits and vegetables provides the range of vitamins and minerals our bodies need to function optimally. Encourage patients to add vegetables and fruits to their meals, and be open to trying new foods.

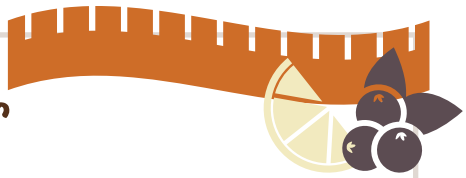
HEALTHY DIET *Checklist*

- ❑ **Eat whole real foods, mostly plants**
- ❑ **Follow a low glycemic load diet**
- ❑ **Consume healthy fats (extra virgin olive oil, avocado, nuts, seeds, fish, etc.)**
- ❑ **Stick with sustainably and humanly raised or harvested animal foods (fish, poultry, meat, etc.)**

A low glycemic load diet is also optimal for health, as it limits the amount of refined sugars and processed foods consumed. While starch and fiber found in whole grains, beans, legumes, pasta, rice, and potatoes are necessary for energy and function, choosing foods lower in glycemic load can help limit the amount of refined sugars and processed foods consumed.

A glycemic index score is different from a glycemic load score—glycemic load takes into account the glycemic index score, but also considers how the cars in the food affect blood sugar levels when eaten in average potions. Glycemic index scores are based on 100-gram servings, which means many fruits and vegetables have a high glycemic index score but a low glycemic load score. Many experts say a glycemic load score may be a better predictor of whether or not a food is a healthy choice.

Healthy fats are another integral part of an ideal diet, and include extra virgin olive oil, avocado, nuts, seeds, and fish. The key when consuming healthy fats especially is understanding portion sizes to avoid overeating. A serving of extra virgin olive oil, for example, is one tablespoon, or 125 calories. Healthy fats have innumerable benefits, so work with patients to help them consume fats smartly.



Weight Loss

For patients who want to lose weight, a calorie deficit is necessary. To lose one pound (roughly 3,500 calories) a week, aim for a 500 calories deficit per day. Patients should not try to lose more than two pounds per week, as extreme dieting can have adverse effects on health and function. When calculating the patient's caloric deficit, consider any physical activity or exercise as well as how active they are in their day-to-day lives. Then, calculate what percentage of calories should come from each macronutrient (carbohydrates, protein, and fat) and make recommendations based on these calculations.

Keep quality in mind when selecting or recommending foods, especially animal foods. Sustainably and humanly raised or harvested fish, poultry, and meat are not only better for the environment, but often have better flavor and are better for you because their nutritional content has not been depleted or replaced with chemicals, additives, and preservatives.

Maintaining a Healthy Microbiome

A microbe, or microscopic organism, is a living thing that is too small to be seen with the naked eye. This general term is used to describe bacteria, fungi, yeast, and viruses. A microbiome is the collection of the microbes living in a given community, like the intestines in the human body. We also sometimes refer to these communities as "flora" or "microbiota".

As humans, we begin to build our microbiome the moment we are born. How and where we're born play a big role in the types of microbes we acquire. Babies pick up microbes from every person or thing they touch, and continue to pick up microbes throughout their lives. The microbiome isn't fixed and it develops over time and changes in response to its environment.

Until recently, bacteria in the gut were thought to play a role only in regulating bowel movements. However, it is now known that gut bacteria affect the entire body, including the brain. Among other functions, the beneficial bacteria in the gut synthesize some vitamins, help with digestion, balance mood, reduce anxiety, and protect against infections and some forms of cancer. Strains of good bacteria in the gut are also associated with lower rates of obesity, diabetes, and various gastrointestinal diseases.

If there are too many bad bacteria or too few good bacteria, in the microbiome, serious health problems can arise. The population of good bacteria, also known as probiotics, in your body can be inhibited or killed by stress, surgery, illness, trauma, or unhealthy eating habits. Antibiotics can kill bad bacteria that cause disease, but they also kill off many of the beneficial microbes. We can keep our microbiomes healthy by eating foods that feed the good bacteria—prebiotics— and avoiding foods that encourage the growth of bad bacteria.

Organics, GMOs, and Pesticides

Organic foods are foods that are grown without the use of pesticides, herbicides, irradiation, sewage sludge, hormones, and antibiotics. In order to be certified "organic" by the United States Department of Agriculture (USDA), organic farms are strictly prohibited from using these technologies and chemicals.

In general, organic farms must demonstrate that they are protecting natural resources and conserving biodiversity as part of their operations. Foods that don't meet the USDA's strict requirements for the USDA organic label, but still meet the standard requirements for food production, are referred to as conventional foods. Conventional foods are cheaper, but contain hormones and pesticides that have associated health risks.

Genetically modified organisms (GMOs) are of great controversy in both the health and food industry. A GMO is a plant, animal, or other organism whose genetic makeup has been modified by gene

splicing, gene modification, or genetic engineering. Plants have historically been genetically engineered to select for desirable traits like size and sweetness. Today, most GMOs have been engineered to resist herbicides, chemicals that are used to kill weeds.

There is currently not enough research to know what effect GMOs have on human health. The best bet is to limit GMOs when possible until there is enough research to support their safety.

Pesticides are chemicals that are used to kill weeds, insets, fungi, and other pests. They are toxic and prolonged exposure to pesticides is known or suspected to cause birth defects, toxicity to a fetus, benign or malignant tumors, genetic changes, blood disorders, nerve disorders, endocrine disruption, and reproductive challenges. Organic foods have less pesticide residue than conventional foods. If you want to limit your exposure to pesticides, begin by buying organic foods whenever possible. Washing your foods before eating or cooking will also help reduce your exposure.

THE CLEAN 15 *and the Dirty Dozen*

The environmental working group created a guide to help consumers identify foods least contaminated with hormones, pesticides, and herbicides. If you are unable to eat organic produce, the Clean 15 are safest to eat when not organic. However, the dirty dozen should be bought organic, if possible, or be thoroughly washed and have their peels removed to minimize potential contamination.

CLEAN 15

1. **Avocados**
2. **Sweet corn**
3. **Pineapples**
4. **Cabbage**
5. **Onions**
6. **Sweet peas (frozen)**
7. **Papayas**
8. **Asparagus**
9. **Mangoes**
10. **Eggplant**
11. **Honeydew melon**
12. **Kiwi**
13. **Cantaloupe**
14. **Cauliflower**
15. **Broccoli**

Dirty Dozen

1. **Strawberries**
2. **Spinach**
3. **Nectarines**
4. **Apples**
5. **Grapes**
6. **Peaches**
7. **Cherries**
8. **Pears**
9. **Tomatoes**
10. **Celery**
11. **Potatoes**
12. **Sweet and hot peppers**

Also note, a small amount of sweet corn, papaya, and summer squash sold in the United States is produced from genetically modified seeds. Buy organic varieties of these crops if you want to avoid genetically modified produce.

Other Considerations

While beyond the scope of this e-book, practitioners should understand that any nutritional recommendations garnering long-term results must incorporate the body, mind, and spirit. While eating right is a significant step towards a healthy lifestyle, patients also need to focus on moving their bodies and getting enough rest. A truly balanced lifestyle must incorporate both exercise and sleep to be successful.

Exercise

Work with patients to establish exercise goals to go along with good nutrition. This can be as simple as going for a walk once a day, though a well-rounded exercise regimen should incorporate aerobic, resistance, flexibility, and balance forms of training.

Heart rate is a good indicator of cardiovascular fitness as well as intensity of exercise. The American Heart Association and the Centers for Disease Control and Prevention recommend a general target heart rate of 50 to about 70 percent of your maximum heart rate for moderate intensity exercise and 70 to about 85 percent of your maximum heart rate for vigorous intensity exercise. Identify the patient's resting heart rate and maximal heart rate, and use the following to determine their target heart rate for various exercise intensities:

- **Subtract age from 220 to calculate maximum heart rate (MHR)**
- **Calculate resting heart rate (RHR) by counting heart beats per minute while at rest**
- **Calculate heart rate reserve (HRR) by subtracting RHR from MHR**
- **Multiply HRR by 0.5 (50 percent) and add RHR. Multiply HRR by 0.7 (70 percent) and add RHR. This is your range for moderate intensity.**
- **Multiply HRR by 0.7 (70 percent) and add RHR. Multiply HRR by 0.85 (85 percent) and add RHR. This is your range for vigorous intensity.**

Though exercise recommendations should be custom based on the patient's health, current fitness level, and overall goals, the Department of Health and Human Services offers general recommendations. For aerobic exercise, aim for 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity a week, or a combination of moderate and vigorous activity. For strength training, do strength training exercises for all major muscle groups at least two times a week.

Sleep

Improving sleep habits can lead to innumerable health benefits. The National Sleep Foundation says sleep requirements vary slightly from person to person, though most healthy adults need between 7 to 9 hours of sleep per night to function at their best.

However, sleep habits can be challenging to address. Therefore, practitioners should try to work with patients to make small, more manageable changes, including:

- **Minimizing or avoiding stimulants**
- **Addressing tension and anxiety**
- **Planning sleep schedules**
- **Preparing for sleep properly**
- **Practicing strategies when struggling to fall asleep or stay asleep**
- **Adjusting light, noise, temperature, and other environmental factors for optimal sleep quality**
- **Changing bedding and pillows**
- **Considering supplements and/or light therapy**

COUNSELING PATIENTS EFFECTIVELY

Practitioners who provide nutrition guidance and recommendations to patients have an important job. Not only are they offering personalized nutritional intake recommendations and a thorough eating strategy, they are coaching patients through a number of dietary predispositions. There is a lot of misinformation out there, and patients who seek an integrative professional's services are likely aware of, or have been following, a conventional consumer diet plan. Your job then becomes both changing lifestyle habits as well as teaching patients the correct information.

The first step when working with new patients is to get to know them—who are they, what are their goals, why did they come to see you, and what, if anything, do they already know about their diet and nutrition. Before the appointment, you may have patients keep a food log. Have them turn them in ahead of time and identify any patterns, points of discussion, or areas of concern.

Work with patients to establish detailed goals and a timeline for achieving them. Help them understand that dietary modifications are, and should be, a slow process and that they should be patient with themselves. There are no "quick fixes" and change comes from consistent application of what you are teaching them. Be empathetic and encouraging, as some patients may become frustrated to find that there is no "magic pill".

Gauge your patient's learning style and any personality traits that may affect their ability to follow an assigned eating strategy. This will help you formulate an individualized plan that the patient will actually stick to. Are they a very organized, meticulous planner? A detailed meal plan and food log may be the best route. Are they busy and working all of the time? Preparing meals ahead of time and weekly check-ins may be better. Get comfortable thinking on your feet and formulating solutions to whatever barriers your patients might face when it comes to eating healthfully.

Unfortunately, what works for some patients likely won't work for everyone. Some patients enjoy more structure, while others will never fill out a food log no matter how many times you ask them. For these patients, you might suggest some sort of incentive or have them take pictures of their meals in lieu of a written record.

Once you've gotten to know your patients better and have an understanding of how you can work with them to create positive lifestyle changes, the next step is to assess and assign. Follow the assessment protocols listed in the earlier sections and take down the patient's weight, measurements, body fat percentage, as well as goals for energy, physical activity, and mental or emotional health. Identify what the patients hope to improve, what they should improve, and then calculate their daily nutritional needs and proposed regimen.

A nutritional regimen may break down daily needs into individual meals, and include examples of foods to be consumed. Depending on your practice, you may opt to keep suggestions general or offer very thorough dietary advice. Some practitioners offer a sample menu with a customized menu available for an added fee. Keep in mind, personalized recommendations take time, so find the balance and optimal value in your services.

Once the patient has an idea of what they should be eating, the next step is going to be accountability. How will you follow up with patients to ensure they are following the guidelines you've given them? Some practitioners leave it to the patients to make the changes themselves. Others request a follow-up visit or series of follow-up visits. Ultimately, the patient is in control of their diet and what they are eating, but we as integrative professionals can make it a collaborative effort. We have to arm them with enough knowledge to take those next steps independently. Then, we have to communicate with the patient and find out how we can help them succeed.

A follow-up appointment may be necessary for some patients, especially those who are trying to lose weight or manage a chronic condition. Alternatively, you may have the technological capacity to work with patients online, by establishing a digital food log or check-in system and offering advice via phone or e-mail. You may also consider hosting educational sessions or group meetings focused on nutrition for your patients. This will encourage patients to look to you as an expert and source of support and knowledge.

Food Logs

Food logs can be used by practitioners as a diagnostic tool or accountability technique. The great thing about food logs is that they are incredibly versatile and customizable. In general, food logs ask patients to record all the food and drinks they consume and include the time, place, thoughts, food preparation, and specific amounts, use measuring cups, measuring spoons, or a food scale to determine the amount.

If using as a diagnostic tool, have patients fill them out for a few days. The idea is to establish dietary patterns—are there certain days or times where the patient consumes more, or consumes unhealthier foods? Having records will allow you to best identify such patterns.

Some practitioners may prefer paper food logs; however find out from the patient how they prefer to record their food intake. Some may want a digital option and therefore you may want to create a spreadsheet in Google Docs, Excel, or a similar program. Mobile applications are another convenient option, and apps like Lifesum and MyFitnessPal are free to download and will allow the patient to record their food intake on their phone. Patients can take screenshots of their diaries and send them to you for review. Patients can also take photos of their food, which is particularly helpful with individuals who don't adhere to written food logs.

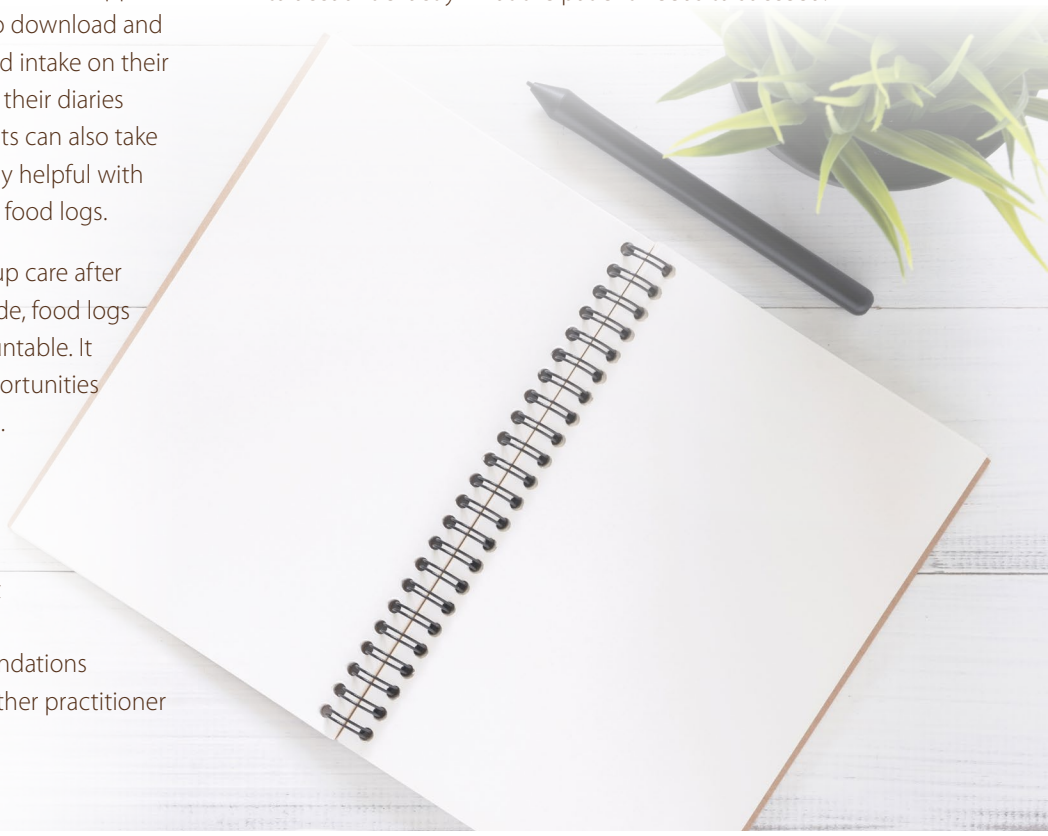
If a patient expresses interest in follow-up care after initial recommendations have been made, food logs can be a useful tool to hold them accountable. It will also help you identify trends or opportunities for further suggestions or modifications.

Fad Diets

When educating patients, it's important to keep science at the forefront of our recommendations. Base your recommendations on what the science says, not what another practitioner recommends to their patients. In terms of the variety of diets that are out there, patients may be curious or want to try one of these plans. This is where education comes in to play. Ask that your patients leave their previous knowledge at the door and come to your practice with an open mind.

Shifting the Focus

Now that we have the fundamentals of nutrition counseling mapped out, we must continue to shift our thinking from a directive approach with patients to a collaborative, open, and engaging approach. We must inspire our patients to make lasting changes, and this comes from working with them to understand who they are and their vision for their health and wellness, taking in to account body, mind, and spirit. When coaching patients, practitioners should avoid telling them what to do or "prescribing" one method of doing things. Work with patients to understand the underlying causes of their nutritional frustrations and help them come up with solutions and a lifestyle that they will actually want to manage. This goes beyond numbers and measurements and takes in to account exactly what the patient needs to succeed.



MACRONUTRIENT WORKSHEET

Patient Name: _____

Date: _____

Body Weight (BW): _____

Body Fat % (BF%): _____

Body Fat Mass (in pounds): _____

Lean Body Mass (LBM):

BW - BF lbs: _____ - _____= _____

Resting Metabolic Rate (RMR):

LBM x 12: _____ x 12 =

Daily Caloric Requirement (DCR):

RMR x activity (see table): _____**x**_____ = _____

Target Calories (TC):

DCR - Calorie Deficit* _____ -_____ = _____

**Note: Based on goal weight. Calorie deficit should never be more than 1,000 calories or 20 percent of DCR.*

Activity Calculation Table

Lifestyle/Activity Level	Activity	Protein
Office/Low-Med	1.3	0.7
Office/High	1.4	0.8
On Feet/Low-Med	1.4	0.8
On Feet/High	1.5	0.9
Heavy Work/Low-Med	1.6	0.9
Heavy Work/High	1.7	1

Macronutrient Targets

Protein

LBM x protein requirement (see table)

_____x_____=_____grams of protein grams _____

_____of protein x 4 = _____daily calories from protein

Fats

TC x % fat** = _____daily calories from fats

Daily calories from fat ÷ 9 (divide by 9) = _____grams of fat

*** Practitioner to determine based on patient needs. 15% minimum, 30% maximum.*

Carbohydrates

TC – Fat calories – Protein calories

= _____daily calories from carbohydrates

Daily calories from carbohydrates ÷ 4 (divide by 4)

= _____ grams of carbohydrate

Optional: *Divide macronutrients amount meals/snacks*	Breakfast	Snack	Lunch	Snack	Dinner	Totals
Protein						
Fat						
Carbohydrates						

Editor's Note: *This worksheet was created based on the Harris–Benedict equation (also called the Harris-Benedict principle).*

SAMPLE FOOD LOG

PATIENT NAME:_____ **DAY:**_____ **DATE:**_____

Instructions: *Please record all the food and drink you consume and include the time, place, thoughts, food preparation, and specific amounts. Use measuring cups, measuring spoons, or a food scale to determine the amount.*

Time	Place	Food and Beverages	Amount	Preparation	Thoughts and Feelings
7:30 a.m.	Home (kitchen)	Cereal with milk, banana, orange juice	2 cups with 1 cup, 1 single, ½ cup	N/A	Hungry, rushed, tired
11:30 a.m.	Work (desk)	Sandwich: Bread, Roast beef, mustard, lettuce, tomato, cheddar cheese Apple Chocolate chip cookies Diet soda	2 slices, 3 oz, 1 tsp 1 single 3 small 1 can	Bread was toasted	Hungry, ate alone while working
3 p.m.	Work (office kitchen)	Coffee Cheese and crackers	1 cup 2 oz and 15 single	N/A	Starving and tired, but happy to have a coffee break with coworkers
6:30 p.m.	Restaurant	Pizza Potato chips Diet soda Water with lemon	½ 12-inch pizza Not sure (ate out of big bag), 1-3 handfuls 16 oz 8 oz	N/A	Went out with friends after a long day. Was tired and stressed so wanted a big meal.
10 p.m.	Home (watching TV with husband)	Ice cream	½ pint (roughly, shared)	Ate out of container	Craving something sweet so we shared a tub of ice cream to wind down

FOOD LOG

PATIENT NAME: _____ **DAY:**_____ **DATE:**_____

Instructions: *Please record all the food and drink you consume and include the time, place, thoughts, food preparation, and specific amounts. Use measuring cups, measuring spoons, or a food scale to determine the amount.*

Time	Place	Food and Beverages	Amount	Preparation	Thoughts and Feelings

RESOURCES

- American Heart Association. "Healthy Living."
- American Heart Association. "Diet and Lifestyle Recommendations."
- David Katz, MD.
- Dietary Guidelines for Americans.
- Department of Health and Human Services. "Dietary Guidelines."
- Institute of Medicine (IOM), Food and Nutrition Board (FNB) of the National Academy of Sciences
- Mark Hyman, MD.
- MyPlate.
- National Association of Nutrition Professionals.
- Nutrition Science Initiative.

CONTRIBUTORS

KAREN MALKIN, NBC-HWC

Karen Malkin, NBC-HWC, is among the first National Board Certified Health & Wellness Coaches. She is certified as an Integrative Health Coach and Lifestyle Practitioner from both the Arizona Center for Integrative Medicine (AzCIM) and the Institute for Integrative Nutrition, and is certified through the Institute for the Psychology of Eating.

Malkin has a private health coaching practice in Chicago, Illinois. As co-founder and CEO of MCT Foods, LLC, Malkin developed a line of high-quality vegan protein blends, MCT oil, and superfood bars. She is the author of the 14 Day Transformation series, including "Toxin Takedown."

She is a regular guest on ESPN Sports Medicine Weekly Radio and has appeared in several media outlets and publications, including The Chicago Tribune, The Chicago Sun-Times, and Crain's Chicago Business.

Malkin passionately serves on the board of directors of the Environmental Working Group, an environmental advocacy organization. She also serves on advisory council for the Osher Center for Integrative Medicine at Northwestern Medicine, the board of directors for Gardeneers, an organization which sustains and provides curriculum for Chicago Public Schools, and serves on the advisory board for Spiral Sun Ventures, a mission-based capital fund investing in health and wellness products.

Malkin's clientele includes executives, professional athletes, women of all ages, and motivated individuals who are ready for a new level of vitality. Some of Karen's specialty areas include corporate wellness, 14-Day Transformation whole foods cleanses, reducing environmental chemicals toxicants, emotional eating, weight loss, the science of nutrition, managing cravings, and healthy lifestyle makeovers.