

*This chapter is dedicated to my
children, Isabella and Zachary.*



Everyone eats, right? What do you need to know about nutrition? Well, there's a good chance that beyond the most basic and probably minimally required amount of nutritional education, you may not know what you need to eat to be healthy and get fit. Humans don't intuitively eat the right combinations of nutrients (carbohydrates, protein, fat, vitamins, minerals and water). When a person has a "craving" for a food, it doesn't mean that they have a deficiency of the nutrient(s) that may be contained in the food they have a burning urge to eat.

Keep in mind that this is just one chapter on nutrition. There are many books and online resources from which you can get more in-depth information. (Several recommendations are provided at the end of this chapter.) The "information superhighway" can be a wonderful thing but watch out for potholes. In other words, be aware of the source from which you get the information that you seek. It can be difficult to determine credible resources from less-than-appropriate ones.

Before proceeding, here are some important definitions that must be established:

- **Food** - Any substance that your body can take in and assimilate that will enable it to function.
- **Nutrition** - The study of the nutrients in foods and in the body; also, the study of human behaviors that are related to food.

- **"Diet"** - All foods that you consume (usually through the mouth).
- **Essential nutrients** - Those nutrients that you must ingest through your diet since they cannot be created in sufficient amounts by your body. Examples of essential nutrients are carbohydrates, essential fatty acids, essential amino acids, vitamins, minerals and water.

DISEASE PREVENTION

Nutrition is a relatively new science. Understand, too, that science is always changing. Epidemiologists are scientists who study the relationship between disease and lifestyle behaviors to try to find a link. For instance, it's well established that smoking can cause lung cancer. This doesn't mean that every person who has lung cancer was a smoker or that every person who ever smoked will develop lung cancer. However, dietary-intake habits and physical activity can affect the following diseases/conditions:

- cancer
- cardiovascular disease
- depression
- diabetes
- gallstones
- high cholesterol
- hypertension
- joint and orthopedic problems
- obesity
- osteoporosis
- sleep apnea

Chapter 13

Nutrition: How to Nourish Yourself From the Inside Out

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After you've completed a workout, make sure that you consume plenty of fluids, carbohydrates, protein and fats.

According to the American Cancer Society, more than 60% of all cancer deaths could be prevented if people ate healthier foods, exercised more, discontinued smoking and received the recommended cancer screenings. What's known about nutrition and exercise is that it can be the least expensive, least invasive and most effective way to prevent, treat and delay the onset of many diseases. The question is, "Can everyone prevent or delay the onset of these diseases?" Your health is in your hands and your food choices may play an important role in your health. After all, prevention is the best medicine.

Being well nourished helps your immune system to function properly. When humans are malnourished, they're at risk for diseases and illnesses. Dietary intake habits that are rich in fruits, vegetables and whole grains and low in fat are better for health promotion.

THE DIETARY GUIDELINES FOR AMERICANS

It may seem rather confusing that every few years, the federal government comes out with new recommendations about nutrient intake and physical-activity guidelines. However, science changes every day and as information from research is collected, the U. S. Department of Agriculture (USDA) and the Department of Health and Human Services (DHHS) gather groups of scientists (social, academic, research and so on) together to discuss the latest and greatest ways to improve health.

The most recent Dietary Guidelines for Americans (released in 2005) have recommendations about nutrient intake and physical-activity behaviors. The publication is a collaborative effort of the USDA and the DHHS. It contains science-based guidelines for generally healthy Americans over the age of two. Key components of the guidelines include:

- **Consume nutrients and other essential compounds from whole foods and beverages.**
- **Eat fiber-rich whole grains, fruits, vegetables, fat-free dairy and lean "meats."**
- **Control portion sizes.**
- **Reduce fat intake, especially saturated fat and trans fat.**
- **Reduce sodium intake.**
- **Drink alcoholic beverages in moderation, if at all.**
- **Maintain appropriate bodyweight, balancing caloric intake with caloric expenditure.**
- **Engage in regular physical activity for 30 - 60 minutes each day and reduce sedentary activities to promote health, psychological well-being and a healthy bodyweight.**
- **Perform aerobic (cardiorespiratory), flexibility, strength and endurance activities.**
- **Avoid microbial food-borne illness (food safety).**

GETTING YOUR NUTRIENTS FROM THE FOOD SUPPLY

Are all calories created equal? The answer is no. It's time for a quick lesson in

Nutrition 101. What's a calorie? A calorie is defined as "the amount of heat that's required to increase the temperature of one gram of water by one degree centigrade." Nutritionists use this as a way of measuring the energy intake of food. People consume calories (energy) which are used to fuel body functions. Metabolism is a process that utilizes energy from carbohydrates, protein and fat along with oxygen to yield energy (for activity), carbon dioxide and water.

Nutrients are the components of food that are indispensable for body functioning. They provide energy, serve as building material, help maintain or repair body parts and support growth. As noted earlier, the six nutrients are carbohydrates, protein, fat, vitamins, minerals and water. Let's take a closer look at carbohydrates, protein and fat.

Carbohydrate

The preferred fuel for most body functions is carbohydrate. With the exception of dairy products, carbohydrates are foods that have a plant origin. They provide four calories per gram.

Carbohydrates are also referred to as "sugars." While the simple building blocks of all carbohydrates are sugar molecules, the form used in the body is called "glucose." Regardless of food origin, once a carbohydrate is absorbed through the lining of the small intestine, it goes directly to the liver. It cannot leave the liver and be used elsewhere in the body as anything except glucose. Which of the food groups have

carbohydrates? They're found in breads, rice, cereal, pasta, whole grains, fruits, vegetables and dairy. Humans have a very limited capacity to store carbohydrates in their bodies (only enough fuel to last about six to seven hours).

Carbohydrates should make up about 50–60% of the diet.

When carbohydrates are consumed by themselves, they can be digested and absorbed quickly by the body. However, during a mixed-nutrient meal (with protein and fat) or in the presence of fiber, digestion and absorption can be slowed down. Fiber is an important type of carbohydrate. It's found only in foods of plant origin; it usually contains phytochemicals and antioxidants. Fiber is beneficial because it provides satiety (the feeling of fullness), helps with bowel function and can decrease total cholesterol.

There are two types of fiber: soluble and insoluble. Soluble fibers can be broken down completely and digested by human enzymes. Examples of soluble fibers are oat bran, barley, kidney beans, fruits and vegetables. Insoluble fibers are those parts of plants that cannot be broken down by human enzymes and absorbed by the body (such as the strings in celery). This type of fiber does not contribute a significant amount of calories to one's body because it utilizes even more





calories to move it through the digestive system. Examples of insoluble fibers are wheat bran, vegetables and whole grains.

Protein

This nutrient is made up of molecules called “amino acids” (which are often referred to as “the building blocks of protein”). Amino acids are found in grains, vegetables, dairy, meat, poultry, fish, eggs, nuts, seeds, beans, legumes and soy products – pretty much all foods except for fruits. Protein is frequently found with fat in its food of origin (or in the cooking process). Many people have greater satiety after eating protein foods because they take longer to be digested and absorbed.

Like carbohydrates, protein also provides four calories per gram. Protein is considered to be an “expensive” form of energy and, thus, is normally used only to provide energy as a last resort. Also, the human body has limited storage capacity for protein. Contrary to popular belief, eating more protein doesn’t increase muscle mass. About 15-20% of the diet should be protein.

Fat

Truly, fat is the “F word” in nutrition (unless you’re using a high-fat diet). Fat provides nine calories per gram – more than twice that of carbohydrates and protein.

Fats can be classified based on the saturation of the molecule – sorry, chemistry stuff – as monounsaturated, polyunsaturated

or saturated. Other terms with which you may be familiar are “trans” or “hydrogenated” oils. The terms arise from the process of taking a fat that’s liquid at room temperature (oil) and making it solid (such as margarine). The problem with trans fat is that it acts like a saturated fat in the body. Saturated and trans fats can have a direct impact on your levels of blood cholesterol (both total cholesterol as well as triglycerides). Science has shown that consuming saturated and trans fats on a regular basis is more dangerous to health than the consumption of cholesterol. While on the subject, cholesterol does have important roles in the body. For one thing, it’s the starting material for other substances in your body such as bile, steroid hormones and much more. But since the body can create cholesterol, it isn’t considered to be an essential nutrient.

There are essential fatty acids that we need. You may have heard of omega-3 and omega-6 fatty acids. These “good” fats can be found in fish, nuts, seeds, soy, olive oil and avocados. Fats are found in dairy and meats as well as two fruits: avocados and coconuts.

As the American Dietetic Association likes to emphasize, “All foods can fit in moderation.” Fat should be no more than about 30% of the diet.

FAMILY MATTERS

One of the most important messages in nutrition is that it should be a family matter. Everything that Americans do involves food: family life cycle occasions (births, birthdays and deaths), holidays, weddings, religious rites of passage, movies, sporting events and so on. Parents should be role models for their children. It isn't enough to tell children to eat fruits and vegetables. For children to copy a good behavior – such as eating fruits and vegetables – parents must set good examples and eat those foods as well.

Good behaviors should start at birth; however, there's always time to make changes toward eating behaviors that are more healthful. Children are bombarded with more than 10,000 advertising opportunities in a year – and there aren't a lot of commercials for fruits and vegetables. Unfortunately, the most popular vegetables among children are French fries!

Mealtime can be quality family time. Parents can include their children in the meal-preparation process. Remember, by the time a family of four goes out to eat, it could be just as quick – and probably less expensive – to make meals at home. It just takes good planning.

Planning/Shopping

Few people are able plan an entire week's menu every Sunday. So the best thing that you can do is to have good ingredients on

hand, whether it's canned, frozen, dried, refrigerated, ready-*prep* or quick-*prep* foods. If you never use the foods in your crisper drawer, either remember to dig into that part of your refrigerator or don't buy them.

In most cases, fresh foods are best but frozen and canned products can be just as good. Using dried herbs in place of fats can add a lot of flavor to foods without adding unwanted fat. Food manufacturers are trying to meet the demands of consumers; many products are ready-*prepped* and can be cooked in the package in which they come. Even purchasing dried foods that need to be reconstituted with boiling water can be quick, tasty and nutritious.

Clearly, Americans eat on the run! When shopping for groceries, the best strategies are as follows:

- **Go to the supermarket with a shopping list and try to stick to it.**
- **Leave children home (if you can or have proper supervision for them). They'll likely throw "junk food" into the cart.**
- **Spend an extra 20 minutes perusing the shelves for new products, especially to find quick- and ready-*prep* items.**
- **Shop the outer perimeter of the market. That's where the less-processed foods are found.**
- **Refrain from going to the store hungry.**

Dietary-intake habits and physical activity can affect the following diseases/ conditions:

- *cancer*
- *cardiovascular disease*
- *depression*
- *diabetes*
- *gallstones*
- *high cholesterol*
- *hypertension*
- *joint and orthopedic problems*
- *obesity*
- *osteoporosis*
- *sleep apnea*



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INVOLVING CHILDREN

Let children be actively involved in the food preparation process. Even if you can start a small garden – whether it's a small tomato plant or herbs – children are more likely to try something if they grow it themselves. With appropriate supervision, children can help to prepare meals in a safe manner. For a young child, even washing fruits or vegetables can be fun. There are very few schools that still offer home economics or cooking classes. So how will children learn to cook if they're not taught at home? There are many adults who don't know how to cook and refrain from doing so because of insecurity with their skills. Cooking can be a source of great pleasure, fun and stress-free time spent together with children.

Allow children to have access to healthy and nutritious snacks and establish household "eating rules." Family members are more likely to consume fruits when they're washed and left out (such as a fruit bowl or bananas). Melons that are cut and stored in the refrigerator will be consumed sooner if they're ready to eat. Get a melon baller or cookie cutters to make foods into fun shapes.

If your child is a picky eater, are you one, too? Remember, it can take up to 10 exposures to a food before a child may eat it. Don't turn mealtime into wartime – the kitchen isn't the place for a battle of wills. Try to keep stressful topics out of the kitchen and certainly keep them away from the table

while eating. Don't let your children watch television while eating, as they're more likely to consume more food than they should. Instead, encourage them to engage in thoughtful conversation about their day.

SPORTS NUTRITION: BEFORE, DURING AND AFTER

This is a big topic for nutritional professionals. Here are a few words of wisdom: Just as practice makes perfect for sports performance, eating before (when appropriate) and after a workout or a competition takes practice. In terms of nutrient percentages, the general dietary recommendations that were stated earlier also apply to sports nutrition. What's critical is the timing of food intake in relation to exercise/sport performance. A person who eats dinner at 6pm, wakes up at 6am the next day and shortly thereafter goes running for 30 minutes is running on an "empty" fuel tank. Would you go 12 hours during the day without eating?

Think of your body as a car. You need to put fuel (gas) into a car to make it move, right? Well, carbohydrate is the "fuel" that your body needs for vital functions and for voluntary activity – especially sports. Generally, full meals can be consumed 3-4 hours prior to working out or playing sports. As the time gets closer to the activity, the texture of what you eat should go from solid foods to gelatinous foods to liquids.

Some sports have built-in time for eating – such as between games in soccer tournaments – whereas others don't. The important thing to learn about sports nutrition is that establishing good behaviors takes practice. The additional “fuel” should come from wholesome foods, not “junk foods.” After you've completed a workout or sport, make sure that you consume plenty of fluids, carbohydrates, protein and fats.

HYDRATION

Authorities haven't been able to agree on the quantity of fluids that people need. However, they've been able to agree that fluid intake should replace fluid loss. Of course, it's not really practical for you to measure your fluid output but there are some ways to gauge whether or not you're sufficiently hydrated. For starters, you should urinate multiple times throughout the day. Be sure to assess the color of your urine. Ideally, the desirable color of urine is pale yellow. If it's fluorescent yellow, there's a good chance that you recently had a multivitamin supplement. If your urine is dark yellow, then you need to drink more fluids.

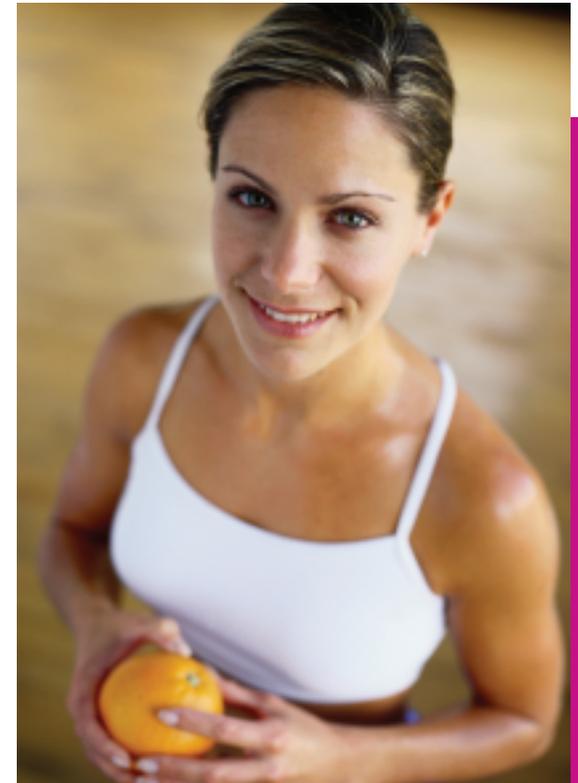
The best fluid for meeting your hydration needs is water. Electrolytes – especially sodium – and carbohydrates are very important for exercise that lasts more than an hour or is done in extremely hot and humid conditions. Think about New Jersey in August.

Many people are naïve about how many calories they consume from beverages each day. Remember, sodas and other flavored “drinks” can add extra calories with very few other nutritional benefits.

MAGIC PILLS, POTIONS, PILLS AND BARS

When asked about ergogenic aids and performance-enhancement products, a graduate professor once said, “There's no such thing in life as a free lunch.” This means that people should assess the risk versus the reward. Is it really worth it? There are no magic substances that are legal that can increase muscle mass or enhance sports performance that don't have the potential for harm. Understand that the federal government – specifically, the U. S. Food and Drug Administration – doesn't regulate the supplement industry. Contrary to what supplement manufacturers would want you to believe, just because something is “natural” doesn't mean that it's safe to consume. No matter how impressive their “research” may appear to the untrained eye, often times it's contrived and/or manipulated in advertising.

When “energy bars” were first sold, for example, they contained a good percentage of carbohydrates, which truly provide “energy.” Now, however, people are gobbling up “protein bars” in lieu of regular food with the thinking that the products will





FOR MORE HELP

If you would like more assistance with nutrition matters, contact a registered dietitian (R.D.). Be aware that all dietitians are nutritionists, but not all nutritionists are dietitians. New Jersey is one of the few remaining states that does not have licensure for nutritionists.

There are some who state they are “certified nutritionists,” with self-education, claims of continuing education hours and misrepresentation of credentials. This does not give credibility. Dietetics professionals are part of a nationally recognized professional association that is approved to be one aspect of the multi-disciplinary health care team that is covered by insurance.

Registered dietitians have a minimum of a bachelor's degree, completed a minimum of 900 hours of a supervised dietetic internship and successfully passed a national registration exam. Those in private practice carry malpractice insurance, just as physicians do.

Registered dietitians use evidence-based practice that is supported by publication in scientific journals, not driven by supplement manufacturers' sales. Registered dietitians understand the anatomy and physiology of the body, its systems, disease states, drug-nutrient interactions, and behavior modification.

To find a dietitian near you, go to www.eatright.org.

give them “energy” for their workouts or sports performance. But those products are more likely to quiet hunger pangs than give real “energy.” This can be another means of adding extra, unnecessary calories to your daily intake.

In short, save your money for buying wholesome foods and invest in good quality foods!

FAD DIETS

The U. S. Federal Trade Commission estimates that over \$30 billion is spent each year on weight loss. Many of the programs, books and products can be expensive and offer unrealistic weight-loss goals. Furthermore, most people who use them rarely enjoy long-term success. Those who do lose weight often gain back most of it – or all of it. And sometimes, they gain back even more than what they had lost.

Try to be a savvy shopper of nutritional information. Remember, simply because people have the letters “Dr” in front of their names doesn’t make them credible to dispense information about nutrition, diet, exercise and weight loss. Just because a celebrity looks good in a bathing suit (but has no formal education) doesn’t mean that they’re credible, either. And just because a program worked for your co-worker doesn’t mean that it’ll work for you. Could you imagine what would happen if we tried to self-treat all of our medical conditions through books and websites

and hired highly unskilled professionals for assistance? Surely, we’d have an enormous medical crisis on our hands.

You’ve just received some basic information about nutrition. To find a nutritional professional in your community, go to the American Dietetic Association website at www.eatright.org. Other recommended online resources include the following:

American Cancer Society: www.cancer.org

American College of Sports Medicine: www.acsm.org

American Diabetes Association: www.diabetes.org

American Heart Association: www.americanheart.org

National Heart, Lung and Blood Institute: www.nhlbi.nih.gov

U. S. Department of Agriculture (USDA): www.nutrition.gov

Note: The USDA website is one-stop shopping for an enormous amount of nutrition information including the Dietary Guidelines for Americans.

