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When faced with new information, High School and University students usually wonder one thing: “Will I ever need to know this in the real world?” Whether it’s the cosine of an angle, Kepler’s laws of planetary motion, or the enzyme responsible for forming citrate. The most common questions are: “Will this be on the test?” and “Will I ever need to know this again in my life?”

We know this very well. Between the two of us, your authors have nearly 20 years of secondary and post-secondary education. We asked these questions many times. So now, as instructors living in that “real world” place, we’d like to level with you. Probably not. Unless you become an engineer, you probably won’t need the cosine stuff. Unless you go to work for NASA, you can probably forget Kepler. And the Kreb’s cycle? Well, you won’t need that unless you sign up for this course.

So why learn all this information? Well, most of us don’t know what we want to be when we grow up. Since you just never know what career path you’ll be on, or what hobbies you’ll develop as you roll down the road of life, it’s important to be prepared for anything. That’s why it’s important to learn as much foundational knowledge as possible. So you have options.

But there’s another, more inspiring, reason for learning this stuff. It’s actually kinda interesting. It helps understand and explain your world. And makes you super-fun at parties. In fact, when you really dig into this knowledge, you might just change what you want to do for a living because of it.

Here’s the only problem. Some instructors (hopefully not us) can strip the fun right out of learning. Many of them simply recite or expect you to regurgitate facts. Often this information lacks any practical application. It’s no wonder we get lost and uninterested. There’s little to spark our imagination. That’s when we start wondering if this crap’s gonna be on the test.

We often wonder what would happen if these instructors started making things more interesting. For example, instead of just describing, defining, and deducing the mathematical formulae Kepler used, why not create a NASA mission out of the exercise? Launch a hypothetical space craft into orbit, bound for Mars! Then, using Kepler’s laws, chart your course so that you connect with Mars at the right time and place.

That’d probably be fun, even with all the math. Of course, the foundational knowledge is still critical. You’d have to know Kepler’s laws before firing up the rocket engines. Yet there’s now a reason to get excited about the information – you’re going to Mars!

What’s the point? Well, in this course, we’ll provide a lot of foundational knowledge. This information about your cells, your digestion and absorption, your energy transfer processes, your metabolic controls, and more can get quite heavy at times. But hang in there because the payoff comes in the second unit. That’s where we turn that foundational information
into applied knowledge using case studies, strategies for working with real-world clients, questionnaires and assessments to use with your clients, psychological strategies for getting clients excited about working with you, and more.

By the end of this course, we expect you to understand how the body works, how to troubleshoot based on physiological considerations, how to intelligently discuss a host of nutritional issues, and how to convince your clients that you have a deep knowledge of the subjects with which you’re helping them. You’ll need this basic science so that you can do your job properly, in the “real world.” However, thankfully, we won’t just stop at the science.

This certification course is split up into two units so that we can cover both nutritional science (Unit 1) and the art of nutritional coaching and practice (Unit 2).

UNIT 1 COVERS ALL THE SCIENCE YOU’LL NEED TO UNDERSTAND THINGS LIKE:

• How and why your cells work the way they do
• How carbohydrates, fats, vitamins, minerals, and other nutrients interact with your cells
• How food becomes energy for maintenance functions, physical work, and repair
• How your body balances out the food you eat with the work it does
• How exercise affects nutritional needs and how nutrition affects exercise

UNIT 2 COVERS ALL THE HANDS-ON, PRACTICAL KNOWLEDGE YOU’LL NEED TO UNDERSTAND THINGS LIKE:

• What it means to be a good coach
• How to prepare for clients
• How to interact with different personalities
• Which questionnaires and assessments are most valuable
• How to meet clients where they are (not where you want them to be)
• How to keep clients progressing from day one until they reach their goals

That may seem like a lot to learn. Don’t get overwhelmed. We’ve included tools to enhance your learning experience as you work your way through the two units. Look for things like:

CHAPTER OBJECTIVES

Each chapter contains clear objectives at the beginning. This will give you goals before you even start reading. It’ll also help you review and self-test before the fateful exam time.

CHAPTER SUMMARIES

At the end of each chapter, we’ll clearly summarize the most important points made in the chapter. These will confirm that you’ve learned what was outlined in the objectives, and provide another excellent tool for exam review.

KEY TERMS

At the beginning of each chapter, we’ll list a number of key terms used in that chapter. The first time one of these key terms appears in the text it’ll be highlighted and a definition will be provided in the margin. These terms will also appear in a glossary at the end of the text. Familiarize yourself with each key term, because you’ll likely see it again (you know, like, at exam time).
CASE STUDIES

Most chapters end with relevant case studies. These will give you “real-life” examples of applied nutrition. Each story describes a client’s nutritional challenges and then provides practical solutions to illustrate how these challenges can be overcome.

REFERENCES

At the end of the text, we’ll provide a comprehensive list of textbooks and studies used to create this certification. If you’re interested in learning more about nutrition, you can look up and read more of this primary source literature.

RECOMMENDED READING AND RESOURCES

No single text or course can ever be sufficient if your goal is to master a subject. Therefore, at the end of the text, we provide you with a host of additional resources that we think you’ll benefit from exploring.

Along with worrying about “real-world” application, if you’re anything like we were as students, you’ll be wondering two things as you begin this course: Am I going to pass the exam? And is this actually going to make me a better professional?

With respect to the exam, it’s important to keep in mind that we’ll provide you with all the learning tools necessary to help you pass the exam with flying colors. (Of course, you still have to study. Sorry.) Here’s how to focus your energy.

LEARNING THE MATERIAL

We recommend pacing yourself, completing one chapter per week. However, you know your own learning style better than we do, so feel free to move through the material as quickly or slowly as you choose. To enhance your learning experience, it’s recommended that you do things in the following order: 1) Read the chapter in its entirety, 2) Then watch the online video lecture, 3) Then go back and answer the workbook questions.

TAKING THE EXAM

The exam consists of 100 questions: 50 questions from Unit 1, and 50 questions from Unit 2. Before writing the exam, we strongly recommend you follow the specific process above (read text, view lessons, review using workbook). Once you feel ready, you can take the exam by clicking the “Exam Introduction” link in the upper right hand side of your certification home page online.

MEMORIZING DETAILS VS. LEARNING CONCEPTS

Don’t stress out, thinking you have to memorize the entire text. As long as you learn the concepts and study as we recommend above, you have a great chance of doing well on the exam. Plus, you’ll be able to turn to your text during the exam process, just as you will in the future, when working with clients.

As far as this course making you a better professional, you bet. If you master both the basic science (Unit 1) and the applied art (Unit 2), you’ll come out of this as a highly trained professional who has the knowledge to back up what you’re recommending, as well as a fool-proof system for delivering outstanding, reproducible results.

Feel like a trip to Mars? Let’s get started!
Chapter objectives
Key terms
Limiting factors
Good nutrition defined
How you can help clients improve their nutrition
Your scope of practice
Applying nutrition technologies
8 steps to effective nutrition coaching
The purpose of this course
Introduction Summary
Objectives

In this chapter, you'll learn the importance of a good nutritional intake for overall physiological function and the body transformation process. You’ll understand the definition of good nutrition, and you’ll be able to help your clients improve their daily food intake – and their lives. You’ll understand your scope of practice in making nutritional recommendations. In understanding what you can and cannot recommend, you can shape your coaching strategy to include both sound training advice and the systematic application of nutrition technologies.

KEY TERMS

Limiting factors
Genetics
Metabolic
Energy balance
Nutrient density
Health
Body composition
Performance
Outcome-based
Laws of thermodynamics
Positive energy balance
Negative energy balance
Insulin resistance
Calorie density
Satiation
Ergogenic
Social support
Medical nutrition therapy
Cross-referral system
Limiting factors

To achieve great results with a client, master one crucial skill: the ability to find your client’s limiting factors – the things that stand between them and reaching their goals – and remove them. That one skill will take you from being a good coach to being a great coach; and from a student to a master. That one skill alone will get more business than you can handle, and better results than you ever thought possible.

Find your clients’ weakness. Find what’s holding them back. Find what’s keeping them from succeeding. And fix that.

There are many limiting factors. More, in fact, than we could possibly cover in this text. After all, people have lots of different genotypes, lots of different lifestyles, and lots of different ideas about what’s “good for them” (and what’s not). However, if you look at people’s limiting factors in terms of their ability to be healthy, to lose fat, and to gain muscle, there are really only a few types of limits:

1. Their genetic makeup;
2. Their physical activity patterns;
3. Their physiology;
4. Their mindset;
5. Their nutrition

Everything else really just falls into one of these categories, doesn’t it?

LIMITING FACTOR 1: GENETICS

Are your clients limited by their genes? We seriously doubt it. Out of the thousands of people we’ve worked with over the years, we can’t remember a single one that couldn’t improve in some very significant ways, despite their genetics. Few people ever come close to realizing their genetic potential for health and fitness. Don’t assume that your clients are standing on the brink of their genetic upper limit.

Of course, we must be realistic. Each of us has certain, very real, genetic limitations. For instance, most of your clients will not be equipped to play quarterback for the Patriots, play center for the Lakers, or win the Tour de France. In other words, they may not have the genetic makeup to reach the upper limit of elite human performance. Despite this limiting factor, all clients can still improve their health, lose fat, and/or gain muscle by getting the right advice and implementing it. In fifteen years of working with all kinds of people, from office managers to elite athletes, we’ve yet to see a single case where we couldn’t improve their body composition, health profile and performance, significantly.

LIMITING FACTOR 2: EXERCISE

Is your client’s physical activity pattern their limiting factor? It’s possible, especially if an individual is completely sedentary. Indeed, if their daily activity involves nothing more than moving from one piece of furniture to another, their exercise habits (or lack thereof) are probably one of their limiting factors. Getting fitter, leaner, and healthier all require both an active lifestyle as well as a commitment to purposeful, regular, intense exercise. If a client sits at a desk all day and then goes home to sit some more, they’re probably cultivating metabolic decline, fat gain, muscle loss, and lifestyle-related disease. They just don’t take enough steps in a day. When the number of steps people take per day are measured, those taking under 5,000 steps are considered sedentary and at higher risk for early death,
disease, and being overweight. In comparison, those who do 10,000 steps are considered active; not surprisingly, they have lower body weights, less body fat, and improved health. When people increase their level of this type of basic physical movement, in conjunction with doing a few hours of purposeful high intensity exercise per week, the magic starts to happen.

However, exercise alone isn't usually enough. As we've seen repeatedly with clients, and as research at major universities is starting to show, many people lag behind because of a different limiting factor, even with a great exercise program. One study examined overweight participants who were either assigned to a control group for 16 weeks (where they didn't exercise at all) or an exercise group for 16 weeks (where they exercised for three hours per week, performing strength exercise with an Olympic weightlifting coach, and two hours per week, performing circuit training with a group exercise instructor). During this time, researchers collected data on body composition and a host of other measures. As you might have expected, the exercise group did get better results than the control group, but these results were... well... embarrassingly unimpressive:

The control group gained 1 lb of lean mass, lost 0.5 lb of fat, and lost 0.5% body fat
The exercise group gained 3 lb of lean mass, lost 2 lb of fat, and lost 1.5% body fat

Obviously, the exercise group did better and the exercise helped a bit. However, if we were your client and one of us had paid $4,000 to $8,000 for 80 training sessions (five sessions per week for 16 weeks), and left having lost only 2 lb of fat after four months, we'd probably demand our money back, and your head on a platter. Is this what our clients can expect? They come to us overweight and unhealthy and after spending a lot of time, effort, and money, they leave only slightly less overweight and unhealthy. If it were us, we would have rather read more books, learned to play an instrument, learned to speak another language... or a host of other activities instead of spending so much time and money on fat loss.

We're exaggerating our indignation here. But only just a little. Purposeful exercise alone, while marginally better than nothing, never seems to produce the results that purposeful exercise plus increased general physical activity (i.e., more steps) plus nutritional control can produce.

People who are overweight and unhealthy, with too little muscle and too much fat, usually have a few problems. They probably don't move enough and they eat too much (or at least, too much of the wrong stuff). You should definitely get them moving more; that's a prerequisite for success. But getting them to move more for a few hours per week isn't usually enough. Their real limiting factor is more than their exercise. It's not their genes. It's not their training program. It's what they're eating – and sometimes, more importantly, what they're not eating.

**LIMITING FACTOR 3: PHYSIOLOGY**

While exercise and nutrition can help almost every client make substantial improvements, there are certain physiological imbalances that may significantly impede results depending on the severity of the imbalance. Thyroid hormone imbalance, gastrointestinal dysfunction and sex hormone imbalances are just a few examples that can cause clients to have difficulties with weight loss, muscle gain or athletic performance.

In the end, these should never be used as an excuse not to begin an exercise and nutrition program. However, if a client's program isn't having the desired effect, it's worth digging deeper into their individual physiology to see if there's a physical reason they're not making the type of progress you expect. We'll discuss how to do this later in the text.
LIMITING FACTOR 4: MINDSET

All the knowledge in the world doesn’t mean a thing if that knowledge isn’t translated into action, daily practices and habits you can repeat consistently. And a client’s mental attitude can be critical in determining whether or not they stick with their exercise and nutrition practices. Or whether they drift away from best practices.

Current research is pretty clear on the importance of having a positive mental attitude, whether it’s a positive outlook on yourself or whether it’s a positive outlook on your goals. Research even suggests that body composition changes and performance are improved when individuals visualize attaining their goal.

So, in the end, it is possible that a client’s mindset could become a limiting factor. We’ll talk about how to address this later in the text.

LIMITING FACTOR 5: NUTRITION

Whether your client wants to gain muscle, lose fat, pursue a healthy lifestyle, or even compete at the highest levels of sport, the most important limiting factor is almost always nutrition. Poor nutrition is what holds clients back. Good nutrition is what propels them forward. Good nutrition feeds muscle and helps shed fat. It improves nearly every measurable health marker. It drastically improves recovery and mood, so clients can exercise — whether it’s purposeful or just part of their daily lifestyle — harder, longer, and more frequently. Good nutrition will get them the body they never thought they could have. And it’s the most significant factor determining their outcome.

Good nutrition defined

Since this entire course is devoted to teaching you exactly what good nutrition is and how to help your clients eliminate poor nutrition as a limiting factor, it’s important to have a working definition of “good nutrition.” If you ask a hundred different people what “good” or “healthy” eating means, you’ll likely get a hundred different answers! Some think good nutrition means eating fewer sugary desserts. Others think it means eating more fruits and vegetables, less meat, and/or fewer carbohydrates. And then there’s the often-cited, commonsensical, and largely meaningless “balanced diet.” While most of the definitions you’ll hear are simple and easy to remember, most of them will be incomplete and some of them will be flat-out wrong.

This course will reorganize your understanding of nutrition. You’ll dump out all the ridiculous, oversimplified, often erroneous media mythology you’ve been exposed to in order to make some room for the right information. We’ll teach you how to judge the “goodness” of a nutrition plan. Let’s start with four important criteria that all good nutrition plans must meet.

1. Good nutrition properly controls energy balance.
2. Good nutrition provides nutrient density.
3. Good nutrition achieves health, body composition, and performance goals.
4. Good nutrition is honest and outcome-based.
5. Good nutrition is sustainable for both us and the planet.

Let’s now discuss each of these in more detail.
1. GOOD NUTRITION PROPERLY CONTROLS ENERGY BALANCE

The phrase “energy balance” represents the relationship between “energy in” (food calories taken into the body through food and drink) and “energy out” (calories used in the body for our daily energy requirements). This relationship, defined by the laws of thermodynamics, dictates whether weight is lost, gained, or remains the same.

However, there’s a lot more to energy balance than its physical manifestation in weight change. Energy balance also has a lot to do with what’s going on in your cells. In this text, you’ll learn more about what’s happening in your body on the cellular level. Both a positive energy balance (more energy in than out) and a negative energy balance (more energy out than in) affect everything from your metabolism to your hormonal balance to your mood. For example, a study that examined military recruits found that severe negative energy balance led to massive metabolic decline and an inability to concentrate; it reduced thyroid hormone production, testosterone levels, and physical performance. The same is true in those with anorexia nervosa: they lose physical fitness, metabolic fitness, mental fitness, bone mass, and muscle mass.

An intense negative energy balance does lead to weight loss. But so does getting thrown in a prison camp or being in a poor African village without adequate food. And that’s exactly what our bodies think when we impose a large negative energy balance: I’m starving. All “non-survival” functions including reproductive function, metabolic function, and brain function slow or shut down.

On the other hand, a positive energy balance from overfeeding (and/or under-exercising) has its own host of repercussions. Weight gain is the most obvious consequence, but health and cellular fitness suffer too: plaques can build up in our arteries; blood pressure and cholesterol can increase; we can become insulin resistant and begin to suffer from diabetes; our risk for certain cancers increases, and the list goes on.

---

**Figure 0.1**

The relationship between calories in and calories out on energy balance and body weight.
Good nutrition programs help to properly control energy balance. Good nutrition prevents excessive swings in either direction (positive or negative) and the body can either lose fat or gain lean mass in a healthy way.

**2. GOOD NUTRITION PROVIDES NUTRIENT DENSITY**

Nutrient density is the ratio of nutrients (vitamins, minerals, fiber, etc.) relative to the total calorie content in a food. Therefore, a food with a high nutrient density would contain a large amount of key nutrients (protein, iron, zinc, B vitamins, etc.) per 100 calories of food.

**Calorie density** is defined as the ratio of calories (which are merely units of potential energy in food) to the actual weight of a food. Therefore a food with high calorie density would have a lot of calories per 100 g of food while a food with low calorie density would have few calories per 100 g of food. For example, foods with a lot of fiber and water tend to have lower calorie density. Foods which have less water or are higher in fat tend to be higher calorie density.
What is good nutrition?

As you might imagine, the best combination of nutrient and calorie density for improving health and promoting fat loss is a diet high in nutrient-dense foods (a lot of nutrients per calorie) and low in calorie-dense foods (few calories per gram of food weight). Such a diet would have the following benefits:

• Easily controlled calorie intake (without calorie counting)
• Longer periods of satiation, or satisfaction/fullness, after meals
• Difficulty overeating
• A higher total essential nutrient intake
• More essential nutrients per volume of food

Conversely, for someone interested in weight or muscle gain, the recommendation above might be altered in favor of high-nutrient-dense, high-calorie-dense foods. This would allow for increases in both nutrient intake and calorie intake, both essential for gains in lean mass and total body weight.

### 3. GOOD NUTRITION ACHIEVES HEALTH, BODY COMPOSITION, AND PERFORMANCE GOALS

Good nutrition is more than about weight loss or gain, which are just transient indicators of energy balance, since energy balance and weight can change from one day to the next. Therefore, finding a long-term set of dietary habits should be based on the intersection of the following three goals:

1. Improved body composition
2. Improved health
3. Improved performance

Yes, a large majority of your clients are working out with aesthetics in mind. They want to lose fat, gain muscle, achieve a flat stomach, and generally look great naked. Because of these strong motivators, they can easily be lured into a world of powerful drugs, invasive and risky surgeries and ridiculous crash diets. While these short-term strategies can sometimes (and temporarily) improve the way your clients look in the mirror, in the long run such strategies can often sacrifice their health and well-being.

### TABLE 0.3

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<th>EXAMPLES OF FOODS WITH LOW CALORIE DENSITY</th>
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<td>cookies</td>
<td>fresh vegetables</td>
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<tr>
<td>crackers</td>
<td>broth-based soups</td>
</tr>
<tr>
<td>butter</td>
<td>fresh fruits</td>
</tr>
<tr>
<td>bacon</td>
<td>chicken breast</td>
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As you can see, the high-calorie-density foods tend to be high in fat and sugar, whereas the low-calorie-density foods are mostly vegetables and fruits. This table illustrates the concept of calorie density, which is crucial for achieving long-term health and fitness goals.

**SATIATION**

The state of being satisfactorily full.
Rather than focusing solely on the visual outcome of body composition, focus on improving a client’s health and performance as well. Employ nutritional strategies that also reduce blood lipids, increase insulin sensitivity, reduce diabetes risk, increase good cholesterol, reduce body fat percentage, and increase lean body mass. In addition to boosting health and body composition, your recommendations should help your clients improve performance, regardless of whether they’re elite athletes or only watch them on TV. Depending on your clients’ goals and activities, performance outcomes range from improved energy levels and stamina to improvements in athletic performance at the elite, world-class level.

While there is a lot of overlap here (for example, if someone begins to look better, they should also begin to feel better and perform better), the overlap isn’t all-inclusive. Some plans help folks lose weight in a hurry while sacrificing their health and performance. Other programs cater to the “I just want to be healthy” market. While some of these approaches (calorie restriction, the avoidance of certain foods, high doses of certain vitamins, and more) can improve one or two indicators of health, many strategies actually worsen health. Finally, there are a lot of performance enhancement programs out there that include powerful ergogenic (performance-enhancing) drugs, crash dieting, diuretics to make weight for competition, unresearched nutritional supplements, and more. While these approaches might improve performance briefly, they often lead to a degradation of health, which inhibits long-term achievement.

Focusing strictly on any one of the goals above to the exclusion of the others can lead to problems. An excessively single-minded focus on “performance” or “weight loss” or “health” might, in some cases, actually produce negative long-term consequences. It’s your job to prevent this type of “coaching gone bad.” Provide a nutrition plan that improves the way clients look, feel, and perform.

To ensure you remain on track, we’ve provided a host of metrics (questionnaires and assessments) later in this text. These metrics will help you monitor each of the three domains above, to ensure that each area is looked after properly.
4. GOOD NUTRITION IS HONEST AND OUTCOME-BASED

While good nutrition controls energy balance, boosts nutrient intake, and targets health goals, body composition goals, and performance goals, it also has to be honest about whether it hits the mark. After all, how many times have you heard the following:

“I eat really well” …but…”I’m still 20 pounds overweight.”

“My diet is perfect” …but…”I often feel sluggish and fatigued.”

“I make good nutritional choices” …but…”I’ve got high blood pressure, cholesterol, and type II diabetes.”

Is it possible that someone could eat really well and have a “perfect” diet yet be overweight, fatigued, and riddled with lifestyle-related diseases? Sure, it’s possible, but it’s not likely. Most people who believe they’re “doing a good job” but who don’t have the physique or the health profiles to show for it, simply aren’t. Either they have a good plan that they’re not executing or their plan isn’t very good. As someone committed to finding limiting factors and removing them, it’s your job to help your clients both improve their plan and their execution. So make sure that you help your clients remain honest and outcome-based in their approach.

Here’s an example of how we can be psychologically dishonest with ourselves, regardless of our intent. Figure 0.3 below illustrates a research study in which researchers compared how many servings of each of the major food groups study participants thought they had eaten each day and how many servings of the major food groups they actually ate. The chart shows the differences between perceived versus actual intake. In every age group people reported their intake incorrectly. Their perceptions do not always reflect reality.

As you can see, both men and women of all ages ate more grains, fats, oils, and sweets than they thought they had eaten. They also consumed fewer fruits and vegetables and less milk and meat than they thought. In other words, they ate more carbohydrates, fat, and junk food than they thought, while eating less protein and fewer fruits/vegetables than they thought.

We doubt these people were trying to be dishonest with their food records. Rather, this study points out a common problem: People simply don’t have a good idea of what their dietary intake really looks like unless they measure and record it accurately. This is an important lesson for you as their personal trainer. If you’re going to help a client improve their nutrition, you have to provide them with the right tools that will force them to be accurate and honest in their nutritional assessment. (We provide these tools in Unit 2.)

Beyond honesty, good nutrition also requires results. If one of your clients thinks they’re “doing a good job” yet have no results to show for it, how “good” is the job they’re doing? Not very. This is the definition of outcome-based: You evaluate the “goodness” of a client’s nutrition plan by observing what happens once your client follows it. In an outcome-based world, theory is meaningless and results are everything. Your client shouldn’t believe they’re doing a good job based on what they’ve read in the papers or in magazines, what they’ve seen on TV, etc. They can only judge their plan based on the results their diet consistently produces.

Good nutrition equals results.
5. GOOD NUTRITION IS SUSTAINABLE FOR BOTH US AND THE PLANET.

What we choose to consume has a major impact on sustainability. If we aren’t responsible with resources, no one will be. The consumption (and overconsumption) of food and water has a strong impact on the planet. The diet we choose to sustain us must also sustain the planet. Fortunately, what’s best for one is best for the other. We’ll talk more about this later in the text.

How you can help clients improve their nutrition

Now that you know what good nutrition is, you’ll likely be asked to help clients make nutritional changes. After all, as a trainer, you occupy an important role within the health care industry and accordingly, have a large set of responsibilities.

For starters, you’re likely the primary health, body composition, and performance access point for your clients. They may not regularly see a physician or other health care provider.
to get information on these subjects. Or, if they do, their health care provider(s) may not be equipped to dispense practical advice for preventive health measures, body composition change, or performance improvement. As a result, your client will turn to you for answers in each of these domains. If you're prepared for this, that's great. If not, your client may seek help elsewhere and both a client and an opportunity may be lost.

You may also become your client’s **social support** system. Many new, or even long-term, clients won't have friends and family committed to helping them improve their exercise and nutrition choices. In fact, those around them may be either uninterested or antagonistic to their lifestyle changes. Clients may look to you for support. Although this places a large amount of responsibility on you to act as a trainer, an educator, and a friend/mentor, it also provides you with a real opportunity to help your clients significantly. In gaining a client's trust this way, the advice and support you give can quite literally change their lives.

Here are two things that will help you prepare for this responsibility.

**KEEP UP TO DATE**

As a trainer, prepare to meet your clients’ need for reliable, current information about exercise, nutrition, supplements, and health in general. While it’s impossible to have a high level of specialized knowledge in each area, luckily that’s not required; a working knowledge should be sufficient. Here are two preferred strategies. First, you can go to the websites of your favorite nutrition/exercise journals and subscribe to “eTOCs” (emailed table of contents). This is a free service that emails you when the latest research articles are published. Second, you can sign up for a program called Evernote, then subscribe to updates with your favorite journals. From there you can save any studies of interest in Evernote for future reference.

**ESTABLISH A NETWORK**

Establish relationships with other healthcare professionals such as registered dietitians, nurses, physical therapists, chiropractors, physicians, etc. By networking and creating a cross-referral system, you’ll not only expand your business network, you’ll have experts to turn to when you just don’t know the answers to certain questions.

**Your scope of practice**

Trainers are often unsure about what they can and can't talk about with clients. As a qualified trainer, you likely possess a fundamental knowledge of human anatomy and physiology. You’ve committed yourself to helping clients improve their health, body composition, and performance. Your experience tells you that nutrition and training go hand-in-hand, and that results come only when both are improved. Thus, you'll probably want to talk about both areas with your clients. Yet employers, dietitians, and other health care practitioners may have discouraged you from discussing nutrition’s relationship to your clients’ goals. Perhaps you've even been told that it’s illegal to discuss nutrition with clients. Well, that's not exactly the case.

Although each state, province, and country has different rules for dispensing nutrition advice, in most areas it’s well within the scope of practice for personal trainers who possess *fundamental nutrition knowledge* to address questions and concerns their clients may have. Notice we emphasize the “fundamental knowledge” part. With specific training, such as that provided in this course, you'll possess that fundamental knowledge and be able to discuss nutrition with clients.
What is good nutrition?

However, while technically, in many North American states and provinces, anyone can make general nutritional suggestions, offering specific advice in the form of medical nutrition therapy (i.e., prescribing nutrition for a variety of health conditions and illnesses) is another story. For example, certain states (see Table 0.4) have statutes that explicitly define the scope of practice. In these states, performance of the profession of medical nutrition therapy is illegal without first obtaining appropriate dietitian credentials and then applying for a license from the state. In these states, it’s perfectly legal for you to make nutritional suggestions for healthy, active individuals. It’s also legal for anyone to share nutrition education through materials that originate from a public or well-known entity such as the American Heart Association, the Centers for Disease Control and Prevention, the American College of Nutrition, etc. It’s only illegal to prescribe nutrition for medical conditions unless you’re a licensed dietitian.

Other states have statutes that limit the use of titles such as “licensed dietitian,” “certified dietitian” or “certified nutritionist.” Yet these states do not necessarily limit the practice of making nutritional prescriptions. In these states, the laws are more liberal, allowing for those without dietetics licensure to offer specific nutrition recommendations as long as they’re certified in nutrition and registered with the state as certified.

In analyzing these definitions, the differences between “general nutritional suggestions” and specific medical nutrition therapy aren’t always apparent. After all, what’s the difference between a co-worker giving some general tips on weight loss for cholesterol reduction and a personal trainer giving the same tips in between sets of squats? And what’s the difference between recommending certain breakfast foods for general good health in a type II diabetic and recommending the same breakfast foods for controlling blood sugar? In the case of grey areas, each state decides these differences. It’s best to check your own state’s laws, rules, and regulations regarding nutritional recommendations.

### TABLE 0.4

<table>
<thead>
<tr>
<th>STATES REQUIRING FORMAL CERTIFICATION AND LICENSE FOR MEDICAL NUTRITION THERAPY</th>
<th>STATES LIMITING TITLES BUT NOT THE PRACTICE OF NUTRITIONAL PRESCRIPTION</th>
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<tbody>
<tr>
<td>Alabama</td>
<td>Kentucky</td>
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<td>Alaska</td>
<td>Louisiana</td>
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<td>Arkansas</td>
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<td>Iowa</td>
<td>New Hampshire</td>
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<td>Kansas</td>
<td>New Mexico</td>
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Other states, at the time of printing, have fewer regulations regarding nutritional practice. For the latest information, see here: http://cdrnet.org/state-licensure

MEDICAL NUTRITION THERAPY (MNT)

Nutritional advice intended to treat a variety of conditions and illnesses, the provision of which is the exclusive domain of trained and licensed nutrition professionals.
Allow us to be candid: It’s unlikely that a trainer will get in trouble for making general nutritional suggestions to otherwise healthy clients. The best trainers, those with nutrition continuing education credits such as those obtained in this course, often make suggestions related to optimal rest, hydration, and food intake as these directly relate to gym performance. These topics usually include: recommending adequate sleep (7-9 hours per night), recommending adequate hydration (6-12 8 oz cups per day), recommending clients eat before a workout (a light meal within an hour or so of training), and recommending that clients ingest adequate post-workout nutrition (usually some protein and carbohydrate nutrition).

Trainers often go beyond these vague basics to make more specific recommendations such as:

- Calorie management strategies such as eating less, eating more filling foods, avoiding calorie-dense drinks and snacks, etc.
- Good food selection strategies such as choosing whole grains over refined ones, choosing protein dense foods, choosing water instead of sweetened drinks, etc.
- Good food timing strategies such as eating in and around the workout, eating breakfast, not eating a large meal right before bed, etc.
- Supplement suggestions/information such as which vitamins, minerals, and other essential nutrients (protein, fat, etc.) may be useful
- Healthy lifestyle choices such as meal options for breakfast, lunch, and dinner; alternative snack suggestions; and planning for upcoming social events

As indicated, in most cases, giving general advice on these topics is acceptable. However, it’s also important to recognize that there are many nutritional issues that require medical nutrition therapy and are thus beyond the scope of a trainer’s practice, and against the regulations of many states. This includes, for example, giving nutrition advice for health problems such as diabetes, heart disease, liver dysfunction, kidney stones, etc., as well as giving advice for eating disorders such as anorexia and bulimia.

Every trainer should know when and how to refer a client to an appropriate health professional, and to whom they should refer. We suggest developing a relationship with a high quality local nutrition partner (such as a dietitian also certified in sport nutrition) to create a cross referral system you can turn to when necessary.

Thus, what you discuss with clients will likely depend on the following:

1. **Your particular state or province’s regulations**: Most states allow you to address client questions and concerns about basic nutrition, although different states have different regulations.

2. **Your client’s likelihood of working with both you and a nutritionist**: If your client has the means to work with both you and a dietitian also trained in sports nutrition, this is likely your best bet as long as you trust this person’s advice. If not, you may want to discuss nutrition with your clients as long as you stay within your scope of practice.

3. **Your client’s health**: If your client has health problems or specific nutrition-related diseases, it’s best to refer him or her to a licensed dietitian also trained in sports nutrition as long as you trust this person’s advice. As a personal trainer, you should never offer medical nutrition therapy. And avoid using the following terms when describing your services: treat, cure, diagnose and prescribe.
To find a registered dietitian in your area, visit www.eatright.org. To find a sports dietitian in your area, visit www.scandpg.org. To find a sports specific nutritionist, go to www.theissn.org.

**Applying nutrition technologies**

Although most trainers that dispense nutrition suggestions do so in and around workout sessions, this is never the ideal time to talk about nutrition. Can you imagine trying to listen to, process, and absorb new information before, during, or after a tough workout? Definitely not the best learning environment, is it? Yet even good trainers often make this mistake.

A better model for making nutritional suggestions is the one that nutrition professionals use, which is the one you'll learn more about in this course. This systematic coaching process involves discussing nutrition when clients are most receptive to learning, during separate nutrition sessions – which, of course, you can bill for as if they were regular training sessions. During these sessions the client will be ready to share and receive nutritional information.

The 8 steps outlined below represent a logical system of interacting with clients from preparation for the first meeting to continuing education/support. They help systematize the coaching process so that every client gets the attention, education, and support they deserve. During this course, you'll learn about each step and be provided with tools that ensure a successful coaching environment. We'll explore each step in greater depth in Unit 2.

<table>
<thead>
<tr>
<th>8 steps to effective nutrition coaching</th>
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<tr>
<td><strong>STEP 1</strong> Prepare for the client</td>
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<td><strong>STEP 2</strong> Collect preliminary client information</td>
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<td><strong>STEP 3</strong> Evaluate client information and explain what it means</td>
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<td><strong>STEP 4</strong> Offer nutritional suggestions and provide nutrition plan</td>
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<td><strong>STEP 5</strong> Offer nutritional supplement suggestions</td>
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<td><strong>STEP 6</strong> Set behavior goals and create monitoring strategies</td>
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<td><strong>STEP 7</strong> Make nutritional adjustments based on client results</td>
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<td><strong>STEP 8</strong> Provide continuing education and support</td>
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The purpose of this course

This course will help you dispel common myths and fallacies associated with nutrition. It will prepare you to discuss nutrition with your clients by establishing the knowledge base necessary to make general nutritional recommendations that support healthy eating behaviours in your clients. Along with providing nutritional theory and science, we'll walk you step-by-step through the actual process that sports nutrition practitioners use to prepare for, evaluate, and make recommendations for clients. Each step is accompanied by the sub-steps, descriptions, tables, and summary charts required to implement that step. You should finish this course with both a better understanding of exercise nutrition and with a complete understanding of the tools used in systematically delivering detailed nutritional recommendations.

It is important to note, however, that successful completion of the course examination will not qualify you as a registered dietitian, licensed dietitian, or licensed nutritionist. (Each state has individual rules and regulations about nutrition licensure; check with your particular state to ensure you are following legal protocol.) Nor will this course allow you to provide medical nutrition therapy. Instead, this course will provide you with continuing education in the field of nutrition. It will enhance your credibility and your skill set. And it will help you overcome the biggest limiting factor your clients face every day: poor nutrition.
By John Berardi, PhD

Many clients come to me with “diet experience.” Some have followed lower-carbohydrate diets (similar to the Atkins Diet). Others have followed low-fat diets (similar to the Ornish Diet). And others have followed more “balanced” plans (similar to the Zone Diet). One client followed all three plans at one point or another and, in conjunction with exercise, achieved similar weight loss results with each of them! Unfortunately, despite the divergent diet philosophies and consistent weight loss, his end result was always the same: he regained all of the weight lost (and then some) before trying the next diet.

In his case, following three wildly different plans resulted in similar weight loss. Some people would ask, “How can this be?” I would ask, “Are these plans so different after all?” Instead of focusing on the differences between three strategies that achieve the same result, it’s more important to focus on the similarities. Indeed, perhaps the differences aren’t all that important (despite what the diet authors fill their books with) and the results lie in the similarities.

The most important similarity and the reason why my client got results with a low-carb diet, a low-fat diet, and a balanced macronutrient diet, is this: all three plans forced him to follow the first rule of good nutrition. All three plans, in conjunction with his exercise plan, forced him to control his energy balance. You might recall that it takes a negative energy balance to achieve weight loss. If someone achieves successful weight loss with each of these plans discussed here, it must be the negative energy balance that’s caused the weight loss, not the lack of carbohydrates or the reduction of fat or a specific macronutrient ratio.

How do all three plans create a negative energy balance? Three ways:

1. The process of following a weight loss plan itself tends to reduce calorie intake, helping decrease “energy in” and helping to shift the body toward a more negative energy balance.
2. The exercise program contributes to the negative energy balance by increasing “energy out.”
3. The Atkins and Ornish plans require dieters to restrict their intake of either dietary carbohydrate or dietary fat. The Zone plan prescribes specific ratios of these macronutrients – ratios which lead to eating less total food. Is it any wonder that by asking dieters to restrict their intake of something, whether it’s carbohydrates or fat or the ratio of carbohydrates to fat, they’ll end up eating less, again reducing their “energy in”?

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I hope it’s now evident why my client had weight loss success with the Atkins, Ornish, and Zone plans. It was the negative energy balance that led to his short-term results, not some magical macronutrient mix.

However, all three experiments ultimately failed. This client had rebound weight-gain each time, which was a result of several non-food-related limiting factors. After giving up, he got off track, stopped exercising, and started eating poorly again. However, it wasn’t the food that caused this – it was a host of lifestyle problems that triggered the relapse. Only when these factors were addressed while working with my team did he change his fundamental habits and lose his excess body fat for good.

In this text, you’ll learn critical strategies for helping clients with both the nutritional planning side of the equation as well as the change psychology side of the equation.
1. The best trainers are characterized by their ability to find limiting factors in their client's progress and eliminate them.

2. The most significant limiting factor for most clients is their nutritional intake.

3. Good nutrition:
   a. controls energy balance;
   b. improves nutrient density;
   c. achieves the interlocking goals of good health, improved performance, and optimal body composition;
   d. uses honesty and outcome-based evaluation; and
   e. is sustainable for both us and the planet.

4. As a front-line health service provider, you may have to fulfill many roles for your clients including the role of trainer, health information provider, and social support network. With this comes great responsibility but also a great opportunity to change your client's lives.

5. The trainer’s scope of practice does not include dispensing nutritional prescriptions for specific health conditions, especially medical nutrition therapy, yet most clients expect trainers to help with their eating plan. It's up to you and your state/provincial regulatory board to decide just how much information you can provide.

6. Establish partnerships with high-quality local nutrition partners (dietitians also certified in sport nutrition) to refer clients to when necessary. Ensure that these partners follow a systematic nutrition approach, such as the one outlined in this course.

7. When using nutrition technologies, you should follow a specific process that is based on a logical workflow and timeline. This process will be taught in this course.

8. You will not be a registered/licensed dietitian or nutritionist when you complete this course. However, you will be prepared to address many of the nutritional concerns that your healthy clients have.