

Foreword

The ability to keep your body well and help it heal are priorities for anyone who wants to take charge of their health, especially in times of widespread disease. While government and health department guidelines help, there is a missing ingredient in the recipe for preventing and healing from viral infections: **building a healthy immune system**. *Simplifying the COVID Puzzle: How Two Essential Vitamins Fortify the Immune System* gives you the tools to strengthen your immune system.

Preventive medicine and healing science are “inside jobs.” You have an immune system army (ISA) made up of trillions of cells. If your ISA could shout—it does, but we don’t tend to listen—your army would say, “Feed us well and train us well and we’ll fight better for you.” Dr. McComsey’s and Dr. Myers’ book explains why feeding and caring for your body well should be a priority for everyone.

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I'm a show-me-the-science type of doctor. I won't prescribe any pill or teach any skill that isn't supported by science. In this book, Dr. McComsey, a university professor of infectious diseases and a clinical researcher, and Dr. Myers, a naturopathic physician with globally recognized expertise, combine their decades of experience. They explain the important and recently discovered science behind their message—that we need to focus more on our immune system health by supplying our bodies with the required micronutrients we may not get from our diets.

You will learn how to equip your immune system to confront infectious diseases and other immune system challenges that you encounter every day. These doctors have spent their professional careers studying the immune system. As you utilize the strategies they share, it will be as if you're saying at the cellular level, "No access granted!" to viruses and invaders.

This book is a unique blend of science and common sense. The two star nutrients it focuses on are vitamin D and vitamin K2, partners in immune system health. Unfortunately, many of us don't get enough of these two nutrients to build our immune systems. I especially loved learning how the roles of these two nutrients combine to provide greater benefits than they can alone, creating *synergy*—an important scientific principle that means they work better together.

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One of my favorite teachings is how to have better blood vessel health. Every organ of your body is only as healthy as the blood flow to it. Vitamins D and K2 keep blood flow less sticky and the arteries more flexible. Better blood flow equals healthier tissues.

Read it, do it, and feel it—you'll be glad you did.

— **William Sears, M.D.**

Founder of AskDrSears.com and author of *The Healthy Brain Book: An All-Ages Guide to a Calmer, Happier, Sharper You*

CHAPTER 2



The Foundation for Strong Immunity

Most people don't tend to think much about nourishing their immune systems with nutrition and a healthy lifestyle—but we need to. Before we dive into discussion of the immune system and specific nutrients like vitamins D and K2, I want to spend some time discussing the idea of nutrition and lifestyle more generally.

Nutrient Deficiency Is Not a Thing of the Past

Supplying your body with good nutrition can be dramatically beneficial, and nutritional deficiency can be very damaging. This probably seems straightforward enough to most people. But how we think about nutrition is often limited.

It's easy to assume nutritional deficiency isn't a big problem anymore when there's access to enough food. It's true people used to get diseases like scurvy (the result of severe vitamin C deficiency) that we rarely see anymore, at least in the

Western world. An important point I want to make is that adequate (or sufficient, for a better term) nutrition is about more than getting the bare minimum of a vitamin.



Nutrition is integral to every process your body does, and it's easy to become deficient in nutrients you need.

Dr. Myers has spent most of his professional life exploring the subject of nutrition and nutritional deficiency, and I find his perspective a valuable frame for discussion. Nutritional biochemistry can be quite complex, but as Dr. Myers notes, we don't need to understand all of the biochemical reactions happening in our bodies for them to happen. They function naturally. They do what they're designed to do without any input from us, except for in a few key areas. One of the most important of these is nutrition.

What is the simplest and most basic nutrient? Oxygen. We need a near-constant supply. We can only survive a matter of minutes without it.

Next in importance is water. Our bodies are 70 percent water, and we can only survive a few days without taking in more.

Then come the nutrients in food. What generally receives the most attention today are the *macronutrients*—proteins,

fats, and carbohydrates. But just like nutrition is about more than avoiding scurvy, it's also about more than the proteins, fats, and carbohydrates that dominate most diet books. Of course your body needs these things, but what's equally important is that it gets a wide, steady supply of *micronutrients*. These are the vitamins, minerals, trace minerals, and other accessory nutrients and phytonutrients your body needs to function at its best. By best, I don't mean at the level of an Olympic athlete. I mean functioning well enough to do all the processes they're meant to do to help you stay healthy.

The Importance of Vitamins

Scientific awareness of vitamins and micronutrients is relatively recent, developing from the work of Casimir Funk in the early 20th century.

Before that, 19th-century nutritional dogma advanced the idea that a healthy diet was comprised of only four components: protein, mineral, fat, and carbohydrate. When research by Funk and his colleagues showed that animals fed only these four things failed to thrive, they realized something else must be missing. This realization was corroborated by research around the diseases beri-beri and scurvy, which researchers discovered could be prevented by specific substances beyond the categories of protein, mineral, fat, or carbohydrate.

Funk proposed that there were “vital amines”—amines being a type of chemical compound—present in foods that were needed for survival. He named these necessary substances by combining the words into “vitamine.” And while it was later discovered that these necessary nutrients weren’t limited to the single structural category of amines, a form of the original name stuck.¹

1. DeLuca, H.F. “History of the Discovery of Vitamin D and Its Active Metabolites,” *BoneKEy Reports*, January 8, 2014, 3: 479. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3899558/>



Almost every function of the body depends on micronutrients.

Micronutrients act as building blocks for our cells and cofactors for our enzymes, and they are the functional components of almost every activity in the body.

Without enough micronutrients, things don’t function as well. This affects every system in the body, including the immune system. Dr. Myers refers to this faltering functionality as the *3D Effect*, the three stages of what he calls nutrient deficiency syndrome (NDS).

When the body doesn’t receive the essential nutrients it needs—again, a situation that is still common today, even in

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developed countries—a process begins that leads to dysfunction. Once this dysfunction becomes visible enough, we tend to then label the resulting symptoms as a disease. Typically, though, the body had one or more issues prior to diagnosis. The body developed a diseased state after first going through various stages of deficiency that eventually reached a point where they became easier to recognize (and probably more difficult to live with).

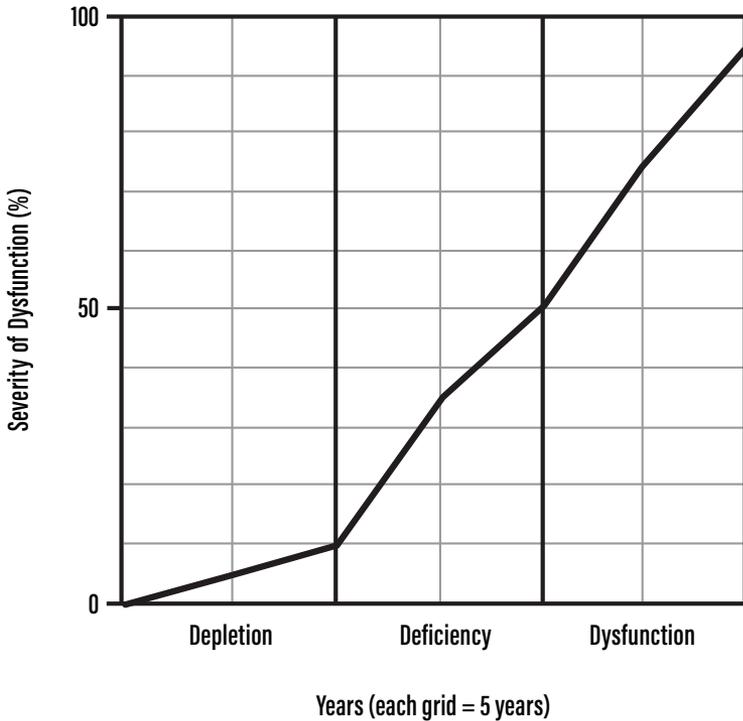
The first stage of nutrient deficiency is depletion. This happens when the body isn't receiving one or more essential nutrients at the level one or more systems need to function optimally. Any stores the body has are then utilized to make up the difference.

The second stage is deficiency. The body reaches this stage when chronic depletion of one or more essential nutrients initiates a breakdown of body systems at the cellular level.

The third stage is dysfunction. This happens when enough cellular damage has occurred that the breakdown of body systems manifests as visible symptoms. When these symptoms cluster in recognizable patterns at high enough levels, they get labeled as a particular disease.

The disease deserves treatment and care of course, but it's important to realize the earlier two stages of this process also deserve attention. There's a nutritional problem long before the body reaches the point of official disease diagnosis. We don't want to wait to get to dysfunction to address it.

Nutrient Deficiency Syndrome Progress



The three stages of the nutrient deficiency syndrome. From Ignarro, Louis, Ph.D., and Andrew Myers, N.D. *Health Is Wealth: 10 Power Nutrients That Increase Your Odds of Living to 100* (Health Value Publications, 2009), p. 51. Used with permission.

Addressing nutritional deficiencies earlier makes a remarkable difference because this is an accelerating process that can easily become a damaging cascade. When you enter a depletion stage for one nutrient, that specific depletion requires the body to compensate by using more of other nutri-

ents. Often, this leads to other nutrients then becoming depleted. In this way, it can turn into a merciless, compounding cycle that causes damage at the cellular level.

So the question becomes, how do we take in sufficient amounts of vital nutrients to avoid falling into depletion in the first place?

Reframe Your View of “Diet”

As you probably would imagine, we start taking in the necessary nutrients through daily food choices—what is often called diet. The word “diet,” though, is somewhat problematic because it reflects part of why we’re in this situation, where a large number of people are depleted in nutrients.

Our culture uses this word a lot. We all know we’re supposed to eat a healthy diet. Most people understand the word in this context to mean our daily food choices, rather than the short-term change it can also refer to, one usually focused on weight loss and cutting certain foods out. But I would argue that the connotation of cutting things out is still wrapped up in the term “diet” and a misdirected perception about healthy eating.

Often people tend to associate a healthy diet with *not* eating certain foods. There’s some truth to this. Removing or cutting out certain foods can be great for your health. Take added sugar, which most frequently in the U.S. means high-fructose corn syrup. There’s nothing about this substance that helps

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your body. When I cut it out of my own diet, I lost about 12 pounds—without doing anything else. Additionally, there are foods that can be healthy or neutral for some bodies, but interact with other bodies in ways that impair health. Of course we want to be aware of this and try to avoid foods that cause problems for us.

Yet when your idea of a healthy diet so thoroughly focuses around what you're trying to keep out, it's easy to forget about what you need to take in. Many people seem to think that avoiding foods they view as problematic while eating anything else is good enough.

It is good enough to keep you from starvation. Yet it won't nourish your body in a way that keeps your immunity, or any other system, strong. To do that, you need to think about the foods you *are* eating as much as the ones you aren't. From there, you need to go beyond the macronutrients that dominate food labels and public conversation and bring your attention to micronutrients, like vitamins and minerals.

To get all the micronutrients your body needs to be healthy, you need to take in plenty of micronutrients through your daily food choices. I'll talk in more detail about how to do this in the final chapter on putting everything together.

For guidance on what to eat every day, I love to start with the Harvard Healthy Eating Pyramid.²

2. "Healthy Eating Pyramid," *The Nutrition Source*, Harvard T.H. Chan School of Public Health, accessed January 15, 2021: <https://www.hsph.harvard.edu/nutritionsource/healthy-eating-pyramid/>



Use the Harvard Healthy Eating Pyramid guidelines to help you choose more micronutrient-rich foods.

It's important to put more emphasis on fresh produce as the core of your daily diet, and while whole grains are nutrient rich, you need more diverse sources of micronutrients than grains provide. The Harvard Healthy Eating Pyramid places vegetables and fruits, along with healthy fats and oils and whole grains, at the foundation of a healthy diet. While it's important to note that not everyone tolerates grains well and this is something you may want to adjust, this pyramid is generally a great approach—and a valuable shift from the standard pyramid we're used to seeing, which places whole grains alone at the foundation.

Placing fruits and vegetables at the base of your diet means you're likely taking in a variety of micronutrients through your food. This is critical, and your body will thank you. As we think about nutrition as the foundation of strong immunity, it's still important to ask, though, are these foods enough to give us the nutrients we need?

Supplementation Is the Beneficial Boost You Almost Always Need

In ideal conditions, healthy daily food choices would be enough to nourish ourselves with adequate nutrition. The reality, though, is that our modern lives are demanding in ways that tax the body and increase our nutritional needs. Many of us live with chronic stress and almost all of us, even when we try to minimize our exposure, are surrounded by a level of environmental toxins that place additional burdens on our bodies. To cope with these factors, our bodies need to take in more micronutrients than ever. Yet while we need more of them, modern agriculture practices have actually led to depleted soil that produces less nutritious food. When I say less nutritious food, I mean substantially, even shockingly less.



Studies have shown that fruits and vegetables today have up to 40 percent fewer vitamins and minerals than they did 50 years ago.³

3. Davis, D.R., M.D. Epp, and H.D. Riordan. "Changes in USDA Food Composition Data for 43 Garden Crops, 1950 to 1999," *Journal of the American College of Nutrition*, December 2004, 23(6): 669-82. <https://pubmed.ncbi.nlm.nih.gov/15637215/>; Davis, D.R. "Declining Fruit and Vegetable Nutrient Composition: What Is the Evidence?" *Hort. Science*, February 2009, 44(1): 15-19. <https://journals.ashs.org/hortsci/view/journals/hortsci/44/1/article-p15.xml>

At the same time, the Western diet is also surprisingly sparse in certain key micronutrients. Unfortunately, this is particularly true when it comes to vitamin K2 and vitamin D.

Eating fresh food is still important and a cornerstone of good health—I can't emphasize this enough—but it's unlikely to be sufficient on its own, even with a seemingly perfect diet. Many of us don't eat that seemingly perfect diet anyway.

This is where supplementation can help. It reflects the reality of modern life and what we need. (And for this reason, I'm pleased to see it included in the Harvard Healthy Eating Pyramid.)

Dr. Myers and I use supplements for our own health, and I encourage everyone I know to do the same. By identifying the most vital micronutrients for your body and then taking them regularly in supplement form, you fill in possible gaps in your nutrition and better enable your systems to work as they're meant to.

There's a lot more to say here. As we continue, we'll talk more specifically about some of these gaps and how they affect your immune system. Our focus in this book remains on vitamins D and K2 but in the final chapter, we'll also look at other supplements you might want to consider.

Lifestyle Habits Matter

I don't want to spend too much time stating what may seem obvious, but lifestyle choices beyond nutrition also make a huge difference in your health and immunity.

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When I talk about lifestyle choices, I mean all the things that you do over and over in your day that contribute to what's going on in your body. This can cover hundreds of behaviors, many of which can affect your immune system negatively or positively.

Some of the most critical things that support your immune system are sleep, regular physical activity, and finding healthy ways to manage stress. (I'll get into more on these topics later.)

Some of the things that damage or stress our immune systems are eating too much sugar, drinking alcohol, and smoking.

First, let's talk about sugar. Earlier, I emphasized what we need to take in. Yet it would be irresponsible to not also touch on this one substance, sugar, that wreaks such havoc on your body. Sugar has significant and unhealthy effects: it can lead to inflammation, insulin resistance, cancer, weight gain, and other dysfunctions. It's also a problem for your immune system.



Eating 20 teaspoons of sugar per day can suppress the body's immune response, and unfortunately, many of us routinely eat this amount—and more.⁴

4. "Harmful Effects of Excess Sugar," AskDrSears.com: <https://www.askdrsears.com/topics/feeding-eating/family-nutrition/sugar/harmful-effects-excess-sugar>

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Today, the average American consumes almost 152 pounds of sugar in one year. This is equal to three pounds (or six cups) of sugar consumed a week. That's almost a cup of sugar each day.⁵ Since one cup of sugar is equivalent to 48 teaspoons of sugar, the average American is eating more than twice the amount that has negative effects on immunity.

Another significant factor that can weaken immune health is alcohol intake. While studies about the benefits of a glass of red wine consistently make the news, and some people seem to think you can help knock out a bug with a hot toddy, the reality is that alcohol depresses your immune system. The World Health Organization (WHO) recently stated, "Alcohol consumption is associated with a range of communicable and noncommunicable diseases and mental health disorders, which can make a person more vulnerable to COVID-19. In particular, alcohol compromises the body's immune system and increases the risk of adverse health outcomes."⁶ When you're seeking to improve your immune health, it's best to avoid alcohol entirely or minimize your intake.

Smoking hurts your body in several critical ways, and that includes weakening your immune system and increasing inflammation.

5. "How Much Sugar Do You Eat? You May Be Surprised," New Hampshire Department of Health and Human Services: <https://www.dhhs.nh.gov/dphs/nhp/documents/sugar.pdf>

6. Ries, Julia. "How Alcohol Can Affect Your Immune System," *Healthline*, April 22, 2020: <https://www.healthline.com/health-news/can-alcohol-hurt-your-immune-system-during-COVID-19-outbreak>

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If you needed one more reason to quit, your immune health, both in and out of the pandemic, is a good one.

I realize that lifestyle choices can be difficult changes to make and sustain, especially in the middle of periods of additional stress. However, I encourage you to seriously try to make healthy choices in these areas if you don't already. Unhealthy lifestyle choices are at the root of many health problems—to the extent that one-fourth of U.S. healthcare costs are attributed to modifiable lifestyle factors.⁷

It doesn't have to be this way.

As you try to make changes, be patient with yourself but also keep moving in a healthier direction. Know that in making an effort here, you're giving yourself a gift. As these healthy lifestyle choices support your immunity, they can also support your mental well-being and all aspects of your health. During a pandemic, that's even more important. I hope this chapter has made clear how deeply nutrition and healthy lifestyle choices are needed to support every system of the body. Now that we have this context, let's zoom in on the primary topic we want to explore: the immune system.

7. Wooldridge, Scott. "Changing Lifestyle Choices Could Cut \$730B in Annual Health Care Spending." *BenefitsPRO*, October 5, 2020: <https://www.benefitspro.com/2020/10/05/changing-lifestyle-choices-could-cut-730b-in-annual-health-care-spending/>