The Original Prescription

HOW THE LATEST SCIENTIFIC DISCOVERIES CAN HELP YOU LEVERAGE THE POWER OF LIFESTYLE MEDICINE

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STEVENS POINT, WISCONSIN

PREFACE

THOSE WHO KNOW ME are well aware that I have spent over 16 years researching and developing evidence-based nutritional supplements (nutraceuticals) for use by clinicians and their patients. You might think it curious, then, that the first manuscript I decided to expand into a book is about lifestyle medicine. The reason is simple. I firmly believe that every therapy, including nutritional supplementation, must be rooted in the fundamental signaling pathways designed to keep us healthy. Those signals and that design are what this book is all about.

In many ways, I have been thinking about some of these ideas since my graduate school days, studying molecular immunology and debating the meaning of life with my fellow students. When you really begin to understand the elegant processes that drive the functions we call "life," you will just shake your head in amazement. My hope is that in my description of the simple complexity that converts our lifestyle decisions into health, you will first be amazed and then inspired to leverage these ideas to pursue your own optimal health.

The fundamental principles we outline here are not "new" per se; they are, after all, *The Original Prescription*. What is new is that our understanding of how and why these interventions work has been expanded with recent scientific research; and when we understand how something works, we are able to leverage its benefits. In this case, understanding the mechanisms behind lifestyle signals allows you to create a synergistic effect using multiple lifestyle intervention strategies. Knowing how these interventions work will also allow you to modify them to fit your unique health history and circumstance, and, because

these concepts are fundamental principles, they won't become useless once the next health fad or research paper comes and goes. As an aside, my other great pursuit is the study of biblical history, language, culture and influence. I have included a few brief anecdotes from these pursuits, mostly in the form of footnotes, for your consideration as well.

It would have been easy in a book like this to point the finger of blame toward all those who have contributed to the poor lifestyles driving our healthcare crisis. The usual suspects of agribusiness, Big Pharma, insurance companies, fast-food chains, government regulation, FDA, poor parenting, and the like are easy targets. The fact is there is plenty of blame to be shared by all. Ultimately, most of the decisions that affect your health are yours to make. The principles outlined in this book have a powerful potential to turn your health around but are impotent if left neglected and untried. My hope is that you will, instead, choose to fulfill *The Original Prescription*.

T.G.G. —Jerusalem 2012

CHAPTER 1

The New Epidemic

"Truth is so obscure in these times,
and falsehood so established, that, unless
we love the truth, we cannot know it."

—Blaise Pascal (1623–1662)

IN APRIL OF 2009, two children in Southern California became ill with respiratory infections that, upon further diagnosis, were recognized as the first reported U.S. cases of a newly identified strain of H1N1 influenza virus (a.k.a. swine flu). There was no known connection between these two patients, nor had either been in contact with swine prior to their illness. A short while later, additional confirmed cases of H1N1, stemming from individuals traveling to Mexico, set off a series of steps that led the Centers for Disease Control and Prevention (CDC) to caution of a looming influenza epidemic; by June of that year, with the help of the World Health Organization, H1N1 was declared a global pandemic. For months, the evening newscasts were headlined by the number of confirmed H1N1 cases, the names of victims, and the status of the hoped-for vaccine. When the vaccine finally became available in October of 2009, demand quickly depleted all the available doses in many locations, and long lines formed anywhere claiming to have an available supply.

I recall writing an email editorial entitled "Pandemic or Pandemonium" just a few weeks after the CDC started its handwringing in early

May of 2009. I questioned whether the panic or the virus would be more potent, because early on it became fairly clear from the CDC's own data that the 2009 strain of H1N1 virus was less virulent than previous strains; or at least the outcomes were quite different than what the CDC had been projecting. You see, up to that point the CDC had been reporting that the *average* U.S. influenza-related death toll was approximately 36,000 deaths per year. However, the estimated number of influenza-related deaths in the U.S. between April 2009 and March 13, 2010, was 12,270 (various estimates ranged from 8,720 to 18,050), only 1/3 of the "average" annual flu-related deaths reported by the CDC up to that point. This discrepancy resulted in the CDC revising how it described its annual flu-related death rate, now reporting it as a 30-year range that is "from a low of about 3,300 deaths to a high of nearly 49,000."

Well, using either the older average (36,000 deaths per year) or the new range (3,300–49,000), it is clear that the fears of the 2009–10 influenza pandemic never materialized.† While much of the medical news was focused on H1N1, however, approximately 3,800 Americans were dying ***each day*** from heart disease, cancer, stroke, and diabetes. These causes alone totaled 1.38 million deaths in 2009 (more than half of all the recorded deaths). These represent numbers of epidemic proportion and constitute a true global pandemic. And yet getting the news anchors to report such numbers daily, or at all, is rare. What accounts for the disproportionate response to these two disease phenomena?

In past centuries, the global health crises have indeed been almost exclusively wide-spread, acute infectious and communicable diseases such as influenza, typhus, smallpox, cholera, and the plague. These devastating events, which sometimes resulted in the deaths of 30–40% of some national populations, left an indelible mark on these nations, and especially upon their public health apparatus. Focus was placed on quickly identifying infectious disease patterns, isolating infected individuals from the rest of the population, and aggressively inoculating populations in an attempt to immunize against the lethality of these diseases. At the same time, implementation of programs to improve hy-

† We certainly do not mean to minimize the tragedy of the lives lost to influenza or any other cause in making our broader point about the shift in disease patterns toward chronic metabolic diseases.

giene practices and access to clean food and water played a tremendous, some would say primary, role in limiting these epidemics.

During the centuries of revolving epidemics sweeping across the world, debates raged about the specific cause(s) of these diseases. To boil it down into the two prevailing camps, some thought that the causes were primarily external (filth, "miasmas," organisms, etc.) and others thought the causes were primarily internal (the physical, mental, or even spiritual status of the patient). In the end, external causes, or what we call the germ theory of disease, prevailed and have become the hallmark of infectious disease research ever since. Along with the works of Pasteur, Virchow, Lister, Fleming, and many others, Robert Koch is credited with defining the means to prove whether an organism is both necessary and sufficient to cause a specific disease. In a theory known as Koch's postulates, he outlined the required steps to isolate a specific organism from sick individuals, culture the organism, and then re-create the same illness/symptoms when that isolated organism was placed into another healthy individual. The very simplistic view of "cause and effect" demonstrated by Koch's postulates, based primarily upon the influence of external organisms, set in motion a monolithic and narrow definition of "disease" from which we are still trying to recover.

In the Western world at least, few truly devastating epidemics have occurred since the Spanish flu pandemic of 1918. In fact, the past century has seen a dramatic rearrangement of the causes of death in the West, including the U.S.: from classic infectious diseases such as influenza, pneumonia, and tuberculosis to chronic diseases such as heart disease, stroke, cancer, and diabetes. Unfortunately, the medical institutions we rely upon the most (as well as the media that communicates the news) are still better designed to identify and combat the infectious diseases of a century ago. Surveillance, quarantines, and mass vaccinations may be hallmarks of the diseases of decades ago, but they are hopelessly impotent to affect the metabolic diseases that are currently upon us. Certainly we don't want to lose our ability to detect and combat epidemic infectious diseases, but new strategies need to be developed to combat the new wave of chronic diseases that are plaguing us today.

Being able to recognize the changing patterns of epidemic trends is quite different than creating a solution that reverses these trends.

Because of the tremendous advances in our ability to identify and differentiate bacteria and viruses as the responsible infectious agents driving the epidemics of the recent past, the very concept of "disease" has been defined by those agents and the symptoms manifested by the infected: "Tuberculosis is caused by mycobacterium" or "Syphilis is caused by the spirochetal bacteria *Treponema pallidum*." In fact, the criteria used to identify what disease a patient had were (and still are) deciphered through a series of questions based primarily on the patient's symptoms: the presence or absence of a fever, a rash, a type of cough, diarrhea, or any number of other defining symptoms. By process of elimination, a diagnosis was made and a therapy prescribed. Invariably, this led to equating diseases with symptoms and eventually to the notion that treating symptoms was akin to treating (or even curing) diseases.

This simplistic "cause-and-effect" view of disease, however, has eluded us as we tackle the current swell of chronic diseases such as diabetes, heart disease, Alzheimer's disease and more. For instance, to say that lung cancer is caused by smoking cigarettes is still not the same as saying that the pox virus causes smallpox. It is possible, for instance, to develop lung cancer without ever being exposed to a cigarette; the same cannot be said of smallpox and the pox virus. There is no "Koch's postulate" for cancer, diabetes, obesity, or heart disease. In fact, what is becoming obvious as we understand more about the mechanisms driving this new wave of chronic diseases is that there is not a single specific cause of each of these conditions, unless you define the "cause" as the avoidance of behaviors known to prevent these diseases. Perhaps we should be spending less time looking into a microscope and more time looking into a mirror if we want to see the culprit of most of today's health problems.

So what then is driving these diseases if they are mostly preventable and not caused by infectious microbes?† Well, as we shall show, a combination of the lifestyle choices and environmental factors that characterize modern Western life appears to be the main culprit. What we

† That's not to say that microbes (bacteria, viruses, fungi) play no role in these disease phenomena at all; but it does appear that the classic cause-and-effect relationship between various microbes and chronic metabolic diseases, where an association might exist, is much more complex and highly dependent upon other factors in the host.

choose to eat and how much is just the tip of the iceberg. Not only have we radically altered our dietary patterns over the few past centuries, but physical activity, work patterns, social structure, leisure activity, stress, toxic burden, and sleep patterns have also dramatically changed. What we have deemed as the "progress" that currently defines civilized Western society may actually be slowly destroying human physiology.

The irony is that while the past century has been marked with an ever-increasing life expectancy in the U.S., the percent of the population suffering from debilitating chronic diseases is also growing. Perhaps life expectancy, often used as a generic measure of a population's health status, is a misleading indicator. This measurement reflects the average age at the time of death, so procedures or circumstances that reduce infant and childhood deaths will dramatically alter population life expectancy data. Furthermore, with the historical reductions in deaths caused by acute infectious diseases, our ability to prevent immediate deaths in individuals with severe life-threatening conditions is a hallmark of modern medicine. Whether from a heart attack, a car crash, or a gunshot wound, our emergency rooms are now able to save vastly more lives than they were a generation ago. Add to this organ transplants, artery bypass surgery, kidney dialysis, aggressive cancer drugs and surgery, along with other heroic (and expensive) measures, and the life expectancy has, until recently, continued to climb. But does this represent better health or better technology? What would our life expectancy numbers look like if we removed the artificial suspension of pharmaceutical drugs and heroic surgeries? Perhaps the overuse of simple statistical measurements, such as life expectancy, may actually have lulled us into a false sense of medical security.

But wait, wouldn't we just expect that since people are living longer, more chronic disease would be expected? Of course we would, but there is something else going on at the same time. At an alarmingly high rate, the age at which the first signs of many of these chronic diseases appear is getting lower and lower, countering the notion that the increase in chronic disease is only connected to age and increased life expectancy. The issue really boils down to health status. Preventing deaths by performing a quadruple bypass is not the same thing as improving someone's "health." Can we really compare the health of today's

typical Medicare patient taking, on average, seven different pharmaceutical drugs with an individual of the same age 100 years ago? What is worse is that while the burden of chronic disease on the individual is clearly devastating, the burden on the healthcare system will eventually be overwhelming. Regardless of how we attempt to pay for the healthcare solutions of the future, we desperately need new approaches.

This year alone, millions of people will be diagnosed with diabetes or heart disease, while tens of millions more are right on the threshold. The current standard of care will dictate that each of these patients will receive one or more of the dozens of pharmaceutical agents approved for these conditions. At the same time, hundreds of billions of dollars will be spent by both industry and governments (through taxpayer-funded grants) looking to add one or two more drugs to the dozens or so we already have (likely replacing some that have been recalled)—and then more money will be raised, more grants will be written, and the process will begin all over again. The names of the drugs keep changing, but our solutions look much like they did a century ago.

Without question, the solution to our current wave of epidemic diseases must look very different than those of the recent past. After all, there is no equivalent to penicillin to make this go away. In fact, if the root causes of these new disease patterns are a result of our own lifestyle choices (individually and collectively), then the solution we seek must be based upon altering lifestyle choices. If 90% of the chronic metabolic diseases plaguing humankind today are preventable, why do we spend most of our money on solutions that avoid addressing the root cause? Science hasn't failed to give us the answers; scientists have just moved on to find answers that they think we will like better. Since we have failed to act by changing our lifestyle habits, we are paying them to discover the magic bullet, one that will allow us to somehow become healthy while ignoring our unhealthy habits.

The hypothesis in this book is simple. The current crisis that is soon to overwhelm healthcare systems around the globe is being driven by the accumulation of poor lifestyle decisions. While the harmful synergistic effects of these poor lifestyle decisions have taken decades to accumulate and overwhelm our buffer against chronic disease, our future is now partially controlled by the genetic modifications left behind by

these poor decisions. We can stop and even reverse this chronic disease phenomenon (individually and globally) by understanding how our body turns lifestyle signals into health and applying a strategy that leverages the powerful synergy of good lifestyle decisions.

Our actions (or inactions) are the most powerful health-promoting tool we have. Our goal in this project is to reveal just how powerful lifestyle intervention really can be. We will be pulling back the curtain and peeking in on just how human physiology is carefully designed to maintain health and prevent disease if given the correct types and amounts of input. Using information from ancient sources up to the latest scientific discoveries in medicine, we hope to outline a new paradigm of thinking about health that explains how changes in our Western lifestyle patterns over the past few centuries have led to specific chronic disease patterns and how we can leverage the power of specific lifestyle changes to prevent and even reverse these disease processes. Recognizing the reality and severity of the current chronic disease burden, we also show how nutritional supplementation, alternative modalities, pharmaceuticals, and surgery can be incorporated within this paradigm.

The task ahead of us is quite challenging. First we will briefly discuss how obesity, one of the signs of Western success, is just the tip of an unhealthy iceberg, and then we'll move on to discuss how we got here in the first place. Understanding the recent past will open our eyes to just how dramatically things have changed. Then, since we spend quite a bit of time discussing a number of published scientific studies throughout the book, we will have a brief discussion about how we know what we know. Without bogging ourselves down in all the gory details, we will discuss the different ways that epidemiologists (those who study health and disease associated with populations) and sociologists (those who study human social structures) define the changes in human health and lifestyle over the past several centuries. Once we define the most prominent lifestyle alterations of the past, we will show how these changes participate in driving chronic disease. At that point, we will have laid the groundwork to introduce and explain the Lifestyle Synergy Model, a paradigm that explains how our bodies are designed to maintain wellness by converting signals from our lifestyle and creating the thing we call "health."

Once we have an understanding of the nuts and bolts of the Lifestyle Synergy Model, we begin to lay out the patterns and principles of a healthy lifestyle. First, we establish the seven different spheres or categories that define the synergistic approach to a healthy lifestyle (or a lifestyle intervention program). Then, we outline a series of principles to help implement the core ideas of each sphere. They are principles, not absolutes, so that you can adapt them and adjust them to new research and changing life situations. Ultimately these principles are the blueprint for health I call the *The Original Prescription* and, when implemented, have the power to turn your life and health around completely. Whether you are a clinician attempting to motivate patients to maintain their own health or a patient attempting to help yourself or a loved one regain health, these are the principles to live by.

Like the proverbial frog thrown into the pot of boiling water, the immediate crisis and fear of sudden death can generate immediate action, so it's no surprise that the threat of a potential flu pandemic quickly produces pandemonium. All the while, the frog sitting in the ever-warming water of poor lifestyle decisions doesn't realize that its demise will arrive without a moment's notice. Arming yourself with the knowledge of both the mechanisms and the principles of lifestyle medicine is the only way to build a healthy future, one that embraces and fulfills *The Original Prescription*.

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Thomas G. Guilliams Ph.D. earned his doctorate from the Medical College of Wisconsin (Milwaukee) where he studied molecular immunology in the Microbiology Department. Since 1996, he has spent his time studying the mechanisms and actions of natural-based therapies, and is an expert in the therapeutic uses of nutritional supplements. As the VP of Science and Regulatory Affairs for Ortho Molecular Products, he has developed a wide array of products and programs which allow clinicians to use nutritional supplements and lifestyle interventions as safe, evidence-based and effective tools for a variety of patients. Tom teaches at the University of Wisconsin School of Pharmacy, where he holds an appointment as a Clinical Instructor; at the University of Minnesota School of Pharmacy and is a faculty member of the Fellowship in Anti-aging Regenerative and Functional Medicine. He lives outside of Stevens Point, Wisconsin with his wife and 6 children.

***To see Dr. Guilliams' other writings, go to The Point Institute*—www.pointinstitute.org.**

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