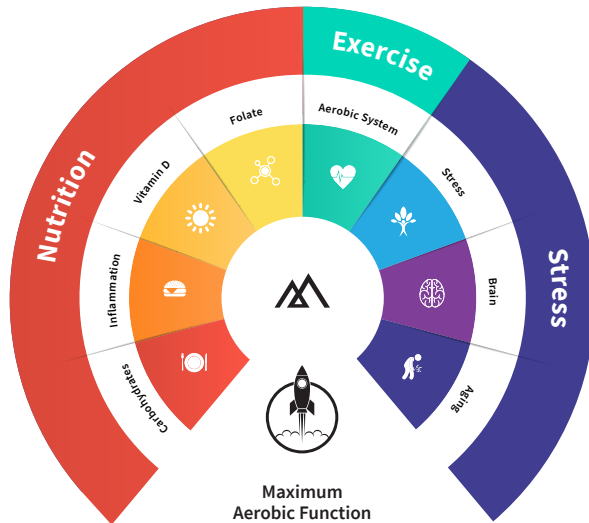


MAF

METHOD



A personalized approach to health and fitness

Dr. Philip Maffetone





The MAF Method

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“ Dr. Maffetone’s system goes beyond dealing with symptoms; he looks at health and fitness as an integrated balance. He deals with the whole picture clearly and directly. Fascinating and illuminating . . . and I feel great! ”

— James Taylor, singer, recording artist

Edited by Hal Walter

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The guidelines put forth in this book should only be used as a reference and only used in the context of standard medical care with your physician.

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Introduction

Greetings, and welcome to MAF. I've been helping people personalize their health and fitness needs for more than four decades. This eBook gives you a good overview of many key features of MAF — why and how it works, important useful definitions, and the ways food, exercise and stress are able to significantly help us. By the end you'll be ready to start the process of personalization.

MAF is an *open system* that can be used by itself, or be integrated into any approach you may be currently using, or help you start all over again. That's because MAF provides assessment tools that help take the guesswork out of exercise, food and stress management. These tools, such as the MAF Test and Two-Week Test, can help you better understand whether your workouts and eating patterns are really right for you.

A note about terminology. I have emphasized simplicity throughout my career. Let's start at the top.

Health and *fitness* are separate but related states.

Health: a state of complete, physical, biochemical, mental-emotional balance where all bodily systems (nervous, hormonal, immune, digestive, etc.) function in harmony.

Fitness: the quality of physical activity, including exercise and sports.

One can be healthy but have poor fitness ; or very fit but unhealthy.

An unfortunate but common problem in sports is that athletes are too often fit but unhealthy. The indications include the common incidence of physical, biochemical and mental-emotional injuries. Athletes are often forced out of training and competition due to these conditions, and, sadly, some die at early ages during competition due to health problems.

Health and fitness encompass all the terms that are thrown around like a pair of old sports shoes. Some of these buzzwords include longevity, wellness, athletic, being in shape and mindfulness. How about unwell, poor health, out of shape, obese, overweight? Cardio anyone? Core? Then there are the mental, emotional, psychological, cognitive, behavioral aspects of the brain, and its memories and creativity. As many of these are not well-defined, confusion results in their implementation.

Basically, health and fitness covers them all.

We can further describe the components of health and fitness through three aspects:

Physical: This includes our body structure such as muscles, ligaments, tendons, bones and joints.

Biochemical: Included are hormones, digestive enzymes, nutrients, blood components and the brain's neurotransmitters.

Mental-emotional: This includes our cognitive process, thinking and being our self, memory, learning and others, including physical pain.

While most features of health and fitness can be put into one category, most also include the two other factors. For example, muscles are physical factors that contain biochemical and mental-emotion features that influence their function.

MAF emphasizes the balance of all components of both health and fitness. This begins with the need to improve the aerobic system because it supplies the energy that's essential for all physical, biochemical and mental-emotional health and fitness.

The acronym MAF stands for *maximum aerobic function*. That's what this method is all about. We can accomplish this through addressing all areas of lifestyle that are under our control, including physical activity and exercise, food and nutrition, and stress. In doing so, we can significantly improve

health and fitness, quality of life, control aging, and achieve the most amazing feats. This may be running a faster marathon, having a more highly functional brain, being more creative or whatever your goals, including all of these and more. And, improvements begin the very first day!

In Chapter 1, I share key reasons why MAF works so well. Then I'll detail *how* MAF does this in Chapter 2, followed by the rest of the chapters describing how lifestyle can powerfully improve health and fitness in ways you can adapt to your particular needs. Founded in clinical science, this relatively simple approach is one you oversee at your own pace. I'm hoping you want to achieve maximum benefits fast — because you can.

—*Dr. Phil Maffetone*

1. Why MAF Works

It's not for dummies, but the intellectually-minded, a rescue remedy for everyone.

I have written about the key components of MAF for decades. This chapter addresses the why. Just why does *maximum aerobic function* work?

With a strong clinical and scientific foundation, the goal of MAF is to help individuals personalize their food, exercise and other lifestyle routines to address *causes* of problems not just treat symptoms, leading to real, lifelong benefits.

These are not commandments, rules or laws, but basic explanations of a holistic approach to health and fitness I began developing in the 1970s. Here are nine short points.

1. As an overview, the shortest answer is that MAF helps restore the most natural state of human performance. This promotes optimal physical, biochemical and mental-emotional health and fitness.
2. MAF means *maximum aerobic function*, reflecting our innate ability to burn (oxidize) body fat for nearly unlimited energy. Reliance on fat-burning, a predominant fuel source potentially used for most of our needs, occurs in the cell's mitochondria, found in muscles, including the heart, kidney, liver and many other areas. Fat-burning also increases production of *ketone bodies*, useful for energy by the brain and throughout the body, and helps keep energy high, and blood sugar and glycogen stores stable. Maximizing natural fat-burning is a key focus of MAF, directly improving all areas of health and fitness.
3. The earliest humans maximized fat-burning as an essential part of developing better and bigger brains and bodies. It led to increased longevity and more functional aging, protection against chronic -illness, physical speed and endurance, and prevention of excess body fat. In a real sense, max aerobic function is how humans advanced so well from the beginning. We possess this same physiology today, unless poor lifestyle interferes with it.

4. Poor food or exercise choices can significantly impair metabolism and reduce fat-burning. Energy wanes leading to a wide array of abnormal signs and symptoms from fatigue, hunger and depression, to excess body fat and weight. This can lead to poor blood lipid profiles, high blood-sugar levels and other common risk factors, ending with chronic illness, physical impairment and reduced quality of life. MAF offers strategies that help people figure out the causes of these problems, and their solutions.
5. Our aerobic *system* is where most fat-burning occurs, especially in the *slow-twitch* aerobic muscle fibers. These non-fatiguing endurance muscles support joints, bones, ligaments, tendons, and anaerobic fibers, promote efficient posture and movement, prevent injuries, and are vital sources of circulation and antioxidant protection. When this system is faulty, it leads to an *aerobic deficiency* — poor fat-burning and increased fat storage.
6. As a natural holistic approach, MAF considers all physical, biochemical and mental-emotional aspects, and how lifestyle stress impacts us. Included are the physical muscles, bones and joints, biochemical hormones, nutrients and neurotransmitters, and mental-emotional cognition, learning, memory and pain. When well integrated, optimal human performance on all levels results.
7. Various MAF tools help people understand abnormal signs and symptoms, find the causes of reduced health and fitness, and personalize lifestyle remedies. It begins with a simple process of self-assessment. These tools include online digital evaluations that guide the process, the MAF Test, a measure of physical activity at specific heart rates, and the Two-Week Test that helps determine foods that best match a person's needs.
8. Measurable improvement is an important goal of MAF—not just the elimination of symptoms but enhancing human performance. As such, MAF has been popular with people of all ages seeking weight and fat loss, athletic performance, corporate and academic improvements, addressing physical impairment, including body and brain injuries, those in rehabilitation, and others.
9. Through the process of self-assessment and monitoring, the MAF Method helps take the guesswork out of eating, exercise and stress to continually improve health and fitness. A simple ongoing monitoring

system, one that will become intuitive for you, helps ensure progress is made *and* maintained to prevent relapse.

2. What is MAF?

Primum Non Nocere is Latin for “first do no harm.” All health practitioners learn this edict early in their training, as it is a driving principle of healthcare worldwide. I have embraced this imperative ethical principle throughout my career, incorporated it into the MAF Method, and encouraged people to adopt it as well.

Both health and fitness are requirements for optimal human performance, but we should not sacrifice one for the other. Unfortunately, too many people continue to sacrifice their health. Rates of poor health and impaired fitness continue to rise worldwide. Junk food continues to feed the overfat epidemic, workout plans increase injury, and remedies for various ailments only address symptoms while ignoring the cause of the problem. The flawed philosophy of “no pain, no gain” encourages people to push themselves beyond the limits of health. This contributes to the widespread “fit but unhealthy” paradox seen in those who are powerful enough to perform great athletic feats, but are nevertheless plagued with injury, illness, disease and sometimes even death.

While *prevention* is a popular buzzword in healthcare — often referring to screening for disease rather than actively avoiding it — too many people don’t implement personalized lifestyle changes required to truly prevent these common problems. Popular health and fitness programs oversimplify the journey and can’t provide an individualized approach. This occurs because our society teaches us to treat superficial symptoms instead of searching out the underlying cause of the problem. The truth is most injuries, illnesses, chronic diseases, and causes of many deaths really are preventable. MAF provides the guidance to help people engage effectively with this individual journey.

The MAF Method offers a variety of tools to help assess your individual health situation, track progress, and create valuable feedback. It helps you personalize your approach by improving nutrition, balancing exercise, and managing physical, biochemical, and mental-emotional stress. Above all, it teaches you to weave these components together in a holistic manner that leads to optimal results.

Central to this open-system philosophy is the realization that no single “best” diet plan or “ideal” exercise program works for everyone. And yet, a key to achieving optimal human performance is unlocking something that resides in each of us — the potential to burn high levels of fat for fuel. This in turn leads to better health, increased physical and mental energy, and greater performance. Only by honest assessment, a key first step in the MAF Method, and by taking control of your own destiny can you become truly healthy, fit, and enjoy a high quality of life.

Most of the body’s energy for daily living comes from the conversion of both sugar and fat to energy. Relying on larger proportions of fat correlates to higher physical and mental vigor, improved health, and better all-around performance. But relying more on sugar is associated with indicators of reduced health: low energy, increased body fat and weight, less endurance for daily living, and lower physical fitness.

Although all humans share this fat-burning capability, developing it is a very individual process. Below are a few unifying principles, which are described in this and other books, and on my website, that can serve most people in the journey through the MAF Method.

Beat Sugar Addiction

One of the most common causes of reduced fat-burning and diminished health is the consumption of sugar and other refined carbohydrates. These junk foods have become a staple in the diets of billions of people — but addiction makes us keep eating them. Junk food directly interferes with one’s ability to be healthy and fit — more so than any other food. In fact, a single meal or snack of sugar or refined carbohydrate can not only turn off fat-burning and significantly disturb hormones, but also switch on the genes that cause disease. The MAF Method employs various strategies to successfully eliminate these foods from the diet.

Turn on Fat-Burning

The next most important step in stimulating the body’s natural fat-burning capabilities is by specifically training the aerobic system through easy exercise. Without doing so, one may become aerobically deficient — a common syndrome associated with fatigue, physical injury, increased weight and body fat, reduced immune function and hormonal imbalance.

By engaging the full spectrum of aerobic muscle fibers, improvements in the heart and lungs, increased circulation, and better brain function also occur. In addition, injury risk is reduced as slow-twitch, fat-burning aerobic muscle fibers support joints, bones and soft tissues — and also assist the fast-twitch, sugar-burning anaerobic fibers in their functions.

MAF provides simple exercise guidelines based on individualized heart rates that work for everyone from sedentary individuals to professional athletes. Tracking the progress of the aerobic system helps predict when strength and speed workouts can produce healthy gains.

Control Chronic Inflammation

Another important aspect of the MAF Method is addressing chronic inflammation, a very common condition that causes reduced fitness, physical impairment and even serious debilitating illness. Most diseases begin in a seemingly benign way, without symptoms or signs; accumulating excess body fat triggers abnormal inflammation. Fortunately, the chemical imbalances that trigger this problem are easy to control with diet and lifestyle. A key to avoiding chronic inflammation is in balancing one's dietary fat intake by eating only natural fats, avoiding junk food, and consuming healthy foods. In doing so, many problems like muscle imbalance, weak bones, injuries, chronic diseases, even mental-emotional illness can be prevented.

Manage Stress

Learning how to avoid the ravages of physical, biochemical and mental-emotional stress is an important part of MAF. Finding the ideal personalized eating style, maintaining optimal nutrition, balancing aerobic and anaerobic workouts, and other lifestyle factors — those that would normally lead to optimal health and fitness — won't work if excess stress interferes. Since the human body and brain has a unique system designed to manage stress, learning how to enlist this natural mechanism is essential.

Through self-evaluation, with the help of questionnaires and self-testing, individuals are guided through the process of determining their particular needs. The three key areas of lifestyle addressed are diet and nutrition, exercise, and the regulation of stress. The end result is improved human performance: better brain function, increased endurance, avoidance of illness and disease, unlimited energy — and for athletes, continuous

strength, speed, and competitive improvements without injury. In summary, the MAF Method is not a cookbook plan, but rather an individualized approach for health-conscious, active people to incorporate into their lifestyle in order to develop their natural talents for years to come.

3. Decision-Making in Health and Fitness

How people make decisions in managing their own health and fitness could play a major role in promoting illness, disease and injury worldwide.

A recent scientific paper published in the journal, *Frontiers in Public Health*, written by my co-researcher Paul Laursen and me, showed how two separate behavioral processes guide individuals in choosing nutrition and exercise lifestyle habits. We applied long-known decision-making theory to consumer choices of health and fitness products and services, showing how emotional decision-making can be harmful.

Individuals applying self-care approaches make certain subconscious or conscious choices, referred to as System 1 and System 2 decisions, respectively, when adopting health strategies such as programs or philosophies, habits and routines.

System 1 is an emotional process with more error-prone cognitive illusions, not unlike brainwashing, that often leads to failure, and even dangerous herd behavior. System 1 is steeped in misinformation, associated with higher rates of failure, while central to selling many health and fitness products and services, showing that emotional decision-making can promote illness, disease and injury.

Unfortunately, many people seeking to improve eating and exercise habits fall victim to this approach through marketing hooks, especially the popular one-size-fits-all diets and exercise programs that System 2, the rational cognitive process, knows is “too good to be true.”

System 2 is a rational decision-making process, associated with personalized plans that tend to be more successful. It relies on conscious intellect, requiring time to think about a particular eating plan or exercise program. The MAF Method is a System 2 approach.

System 2 thinking is promoted as having more reliable long-term and sustainable improvements but generally requires much greater personal engagement than System 1 practices.

Despite the continued growing popularity of MAF, the benefits are too often drowned out by other emotional headline hype. Even though my anti-junk food, anti-no pain, no gain approach, which began in the 1970s, is more scientific, practical and healthier, trendy unhealthy habits, poor health, injury and reduced performance continue to win in the world's marketplace.

The new research demonstrates how System 1 decisions are largely ineffective, may not be beneficial and indeed, may actually be harmful. An example of this is that exercise participation continues to trend upward, yet the overfat pandemic, and resulting rates of disease, simultaneously continue to grow.

If I were to create a headline, it might be something like this: "Don't just do it, do it right."

System 1

- Simple, quick-fix, feeling
- Subconscious, stress response
- Cookbook, one size fits all
- Faster response
- Stronger, addictive
- Autopilot/automatic
- Follow the herd
- Cognitive illusions, error prone
- Sales pitch/path of least resistance
- Just do it; No pain no gain



System 2

- Detailed, planned, thinking
- Conscious, rational
- Flexible, individualized
- Slower thinking
- Less strong, maintainable
- Mental processing, monitoring
- Personalized
- Reliable, long-term success
- The road less traveled
- Don't just do it, do it right

4. MAF 180

“Dr. Maffetone is the father of heart rate training.”

—Andrew Read, Melbourne, Australia. Elite coach (Endurance Sports, Kettlebells, Strength and Conditioning)

Long before wireless heart-rate monitors hit the market in 1983, I was studying my athletes and patients using a bulky analog monitor of the type used in hospitals and cardiac rehab units. The clinical research I gathered by using this equipment led to the development of an alternative to the 220 formula that was becoming popular, one which I previously found was too intense and not personalized. This new 180 Formula helped individuals on all levels of health and fitness, from competitive athletes, to those just starting to exercise, and people focused on weight-loss and reducing excess body fat, not to mention those in rehabilitation.

The popularity of the 180 Formula is evident as millions of individuals have used it worldwide.

The MAF 180 Formula:

Determining your MAF HR

1. Subtract your age from 180.
2. Modify this number by choosing one category below that best applies to you:
 - a. If you have or are recovering from a major illness (including any operation or hospital stay), are in rehabilitation, have been prescribed any regular medication, or are chronically overtrained, subtract an additional 10.
 - b. If you are injured, have regressed or not improved in training (such as poor MAF Tests) or competition, get more than two colds, flu or other infections per year, have seasonal allergies or asthma, are overfat, are acutely overtraining, or if you have been inconsistent, just beginning or returning to exercise, subtract an additional 5.
 - c. If you have been training consistently (at least four times weekly) for up to two years without any of the problems mentioned in a) or b), no modification is necessary (use 180 minus age as your MAF HR).
 - d. If you have been training for more than two years without any of the problems listed above, have made progress in your MAF Tests, and have improved competitively, add 5.

The resulting HR is the high end of the HR range with the low being 10 beats below. For example, a 40-year old in category b) would have an exercise range of 125-135 bpm. Users can self-select any intensity within this range.

While the 180 Formula is best known for guiding aerobic exercise, initially it was for used for weight- and fat-loss. It soon became popular with athletes in virtually all sports to boost performance (including use with performance horses beginning in the early 1980s), and continues to help virtually all types of people monitor their heart rate. Success is demonstrated by increased fat-burning, improved health, and the ability of athletes to run, bike and otherwise perform at faster paces and increased power at the same MAF HR as determined by the 180 Formula.

A primary goal of the 180 Formula is to provide accurate guidance to help people personalize the process of maximizing aerobic function, MAF.

For competitive athletes, once a period of exclusive exercise at the MAF HR is completed, with demonstrable improvement in pace or power at the same HR, one can add higher-intensity training if desired. Depending on the individual, the optimal aerobic/anaerobic balance of year-round training may be about 80:20.

Exemptions:

- The 180 Formula may need to be further individualized for people over the age of 65. For some of these individuals, up to 10 beats may have to be added for those in category (d) in the 180 Formula, and depending on levels of health and fitness. However, this does not mean 10 should automatically be added, but that an honest self-assessment is important.
- For athletes 16 years of age and under, the formula is not applicable; rather, a heart rate of 165 may be best.

If it is difficult to decide which of two groups best fits you, choose the group or outcome that results in the lower heart rate. (For those taking medication that may affect the heart rate, wear a pacemaker, or have special circumstances not discussed here, further consultation with a healthcare practitioner or specialist may be necessary, particularly one familiar with the 180 Formula.)

Initially, exercising at this relatively low heart rate may be difficult for some people. But after a short time, you will feel better and your pace will quicken at that same heart rate, so you will not be exercising at that relatively slow pace for too long. In other words, you will walk, run, bike and perform all activities at faster paces. This increase in pace (or power) at the same MAF HR is also an important evaluation, called the MAF Test, that measures this progress. The chart below shows the improvement of a runner over a four-month period while training exclusively at his MAF HR.

MAF Test report of a runner performing on an outdoor track

	April	May	June	July
Mile 1	8:21	8:11	7:57	7:44
Mile 2	8:27	8:18	8:05	7:52
Mile 3	8:38	8:26	8:10	7:59
Mile 4	8:44	8:33	8:17	8:09
Mile 5	8:49	8:39	8:24	8:15

No Results?

While progress varies with the individual, improved performance at the same MAF HR is a normal, expected response. However, if you don't see progress within a month or two, the two most common reasons include:

- Your MAF HR is too high. This could be due to an error in using the 180 Formula, such as choosing the wrong category.
- Eating for 180. The food we eat can influence fitness even more than exercise itself. This means, of course, eating healthy food and avoiding junk food — without this one cannot get the most out of exercise.

Determining the MAF HR by the 180 Formula is very effective. While it does not replace laboratory testing, it is highly accurate, easily performed and without expense. This personalized approach can be used for effective exercise of any type, can monitor progress through the MAF Test, and also can lead to improved competitive performance and better health, including reduced body fat.

5. Athletes: Fit but Unhealthy?

Balancing health with fitness is essentially the MAF Method in a nutshell.

My provocative 2016 paper published in the journal *Sports Medicine* brought to a larger light the problem of athletes who are unhealthy. While society at large typically views fitness in the same light as health, this obviously is not the case.

With my co-author Professor Paul B. Laursen, the article, “Athletes: Fit but Unhealthy?,” was one of the first to discuss and clear up the paradox between the terms “health” and “fitness,” clearly defining that these two notions can be very different states. Lifestyle clearly affects health and fitness — in particular high-intensity training and poor diet add stress to the mind-body connection.

Some key points regarding this paradox include:

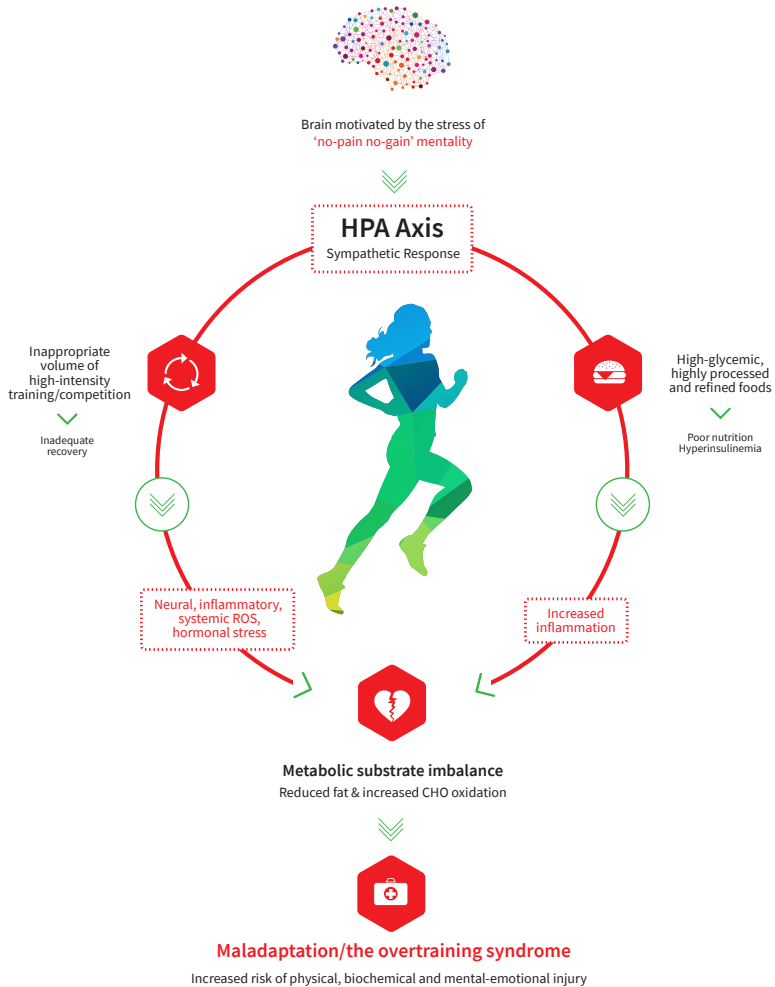
- Fitness and health can be defined separately: fitness describes the ability to perform a given exercise task, and health explains a person’s state of well-being, where physiological systems work in harmony.
- Too many athletes are fit but unhealthy.
- Excess high-intensity or training volume and/or consumption of processed/refined dietary carbohydrates can contribute to reduced health in athletes and even impair performance.

Yes, athletes sadly can be just as unhealthy as anyone. This puts into perspective why athletes sometimes have heart attacks or even die during a race. In fact, many are surprised to learn that athletes are almost as likely to die of heart disease as non-athletes.

A key to achieving both health and fitness is to eliminate junk food and sugar from your diet, and build the aerobic system.

Fit but unhealthy

A training & eating paradigm



The first response to training stress occurs in the brain through a complex neuroendocrine process of adaptation delivered to the body through nerves and hormones. It's called the HPA (hypothalamic-pituitary-adrenal) axis, and is the same mechanism we use every day in adapting to other physical, biochemical and mental-emotional stressors. This process involves

increases of two stress hormones, cortisol and epinephrine, including increased actions of the autonomic nervous system's sympathetic and parasympathetic components. Too much stress results in health impairment at the expense of building fitness.

6. Healthy Food vs. Junk Food

There are really only two cuisines in the world — healthy food and junk. It's simple, eat healthy, avoid the junk.

But what really is junk food?

If you have to ask, you're probably eating it. Even small amounts can contribute to a body's harm and pathology — no, not just emotionally, but physiologically.

In fact, eat some junk food that has zero fat, and 50 percent of it can turn to stored body fat. And as most people know, junk food is a primary cause of the worldwide overfat epidemic that's affecting the full spectrum of individuals, from the poor to the most serious athletes.

Because it contributes to increased body fat, junk food may be the number one cause of the most common chronic diseases, including cancer, diabetes, hypertension, Alzheimer's and heart disease, not to mention a wide spectrum of physical impairments and injuries. It can also increase the risk of infectious disease, even contribute to pandemics. In addition, junk food significantly contributes to low quality of life such as intestinal conditions, hormone imbalance, chronic inflammation, fatigue, and much more — even hair loss! For this reason, some health authorities want to refer to junk food as pathogenic food. But that won't happen soon enough thanks to the ongoing multi-million-dollar marketing campaigns waged by the food industry — the image of these bad foods is now being portrayed as harmless rather than the poison it really is.

However, pathologic food better refers to its capability to cause pathological conditions, including excess body fat.

In all its many disguises — it's amazing how easy it is to fool even the very careful consumer — junk food, including soda, chips and candy, is one of the world's most successful business ventures. Large amounts of it are in virtually all households, including developing countries such as India and others in South Asia, where in one or two generations millions of starving people have now become overfat, thanks to junk food.

It's widely believed that the phrase junk food was coined in 1972 by Michael Jacobson, director of the American Center for Science in the Public Interest (a consumer advocacy organization). But defining junk food has been a difficult task, partly because the number of items are alarmingly high, and also because the food landscape is always changing with “new and improved” products coming and going almost daily.

In defining junk food, the worst ones are most obvious — chips and cookies, coke and colas, and other sugared liquids, candy, and most other snacks. The biggest offenders are sugar (including sucrose, white table sugar, and others such as high fructose corn syrups) and flour, and the thousands of products made from these two deadly ingredients (from ketchup and mayonnaise to energy bars and sports products, and almost all liquid refreshments).

For those on the go, junk food is synonymous with fast food, and includes almost all burgers, fries, pizza, fried chicken and foods that are battered or coated or have sauces. Included are the popular tuna and chicken salad, and even those low-cal dressings. Most international foods are not exempt from the junk food category: Chinese food (high in sugar, starch and or flour), sushi (white rice with added sugar), sweetened teriyaki foods, deep fried fish and chips, and others.

Going to a deli for lunch? The popular ham and American cheese on a roll is a junk-food sandwich. Pasta salad with crackers? Almost all pasta, noodles and similar items are junk. Of course, a plain bagel and diet coke is all junk food too. Instead, have some leaf lettuce with tomatoes, red peppers, carrots and slices of real roast beef or Swiss cheese. Hold the mayo and ketchup, but mustard (after checking the ingredients) or olive oil and vinegar would be OK.

As you push a shopping cart down the food store aisle, it's almost guaranteed that if the food is in a can, box, bag, frozen, or wrapped in a package, it's probably junk food. Consider a can of peaches, which may seem healthy — but most contain sugar. Instead, buy fresh fruit in season, or frozen. Even most trendy bulk foods found in health stores and other retailers, with their funky image of pure and natural, is junk food too. Read the ingredients.

It's not only conventional foods available to consumers everywhere, but most organic items are junk too with their organic sugar and processed

flours. In fact, organic junk food is one of the fastest growing segments of the natural foods industry.

Healthy food is real, naturally occurring, unadulterated and unprocessed, and nutrient-rich. If you can grow or raise it, it's real. Included are fresh fruits and vegetables, lentils and beans, eggs, real cheese, whole pieces of meat (such as fish, beef, chicken), nuts, seeds, and similar items. Consuming these foods provide a great potential for both immediate and long-term health benefits.

Junk food is everything else. It's deceptively cheap to buy and unhealthy to eat. In fact, junk food is not cheaper than natural food when all factors are considered.

More importantly, junk food kills more people globally than tobacco and drugs.

Can we rely on governments to help us understand what foods are junk and unhealthy? Not as long as the political influence by junk food lobbyists continues. This has resulted in some absurd ideas about food. For example, the USDA, the federal department responsible for developing and executing U.S. food policies, does not consider a Snicker's Bar to be junk food. How about chocolate chip cookies, high in white flour and sugar? Not junk food says the USDA. Likewise for French fries, and even an ice cream bar containing 4 teaspoons of sugar.

Most people, including sugar addicts, would agree that candy bars, cupcakes, colas and similar hardcore unhealthy items are examples of classic junk foods. While this is true, there's a seemingly endless list of foods that many might not realize are unhealthy, with the same or very similar nutritional composition. These include almost all breakfast cereals, energy bars and sports drinks, breads, and packaged/prepared foods.

How much junk food causes harm? One bite can be enough for some people, especially those addicted to sugar (discussed in the next chapter). Certainly a junk food snack or meal can significantly alter one's physiology in a negative way.

Among the ways junk-food corporations make their products appear healthy, in addition to advertising, is through the fortification of processed flour. Virtually all this flour is used in prepared and packaged foods, including most baked goods, and what consumers buy for home cooking. In the

processing of wheat flour, most nutrients are removed and lost. Food fortification, which exists in over 50 countries around the world, mandates that synthetic vitamins be added to processed flour. There are at least two problems with this. First, it gives companies a way to advertise a junk food product as healthy (“contains 18 vitamins” or “100% of the daily need for folic acid”). Second, the policy of adding synthetic vitamins to one of the most commonly consumed foods in the world — white flour — has scientists concerned. Fortification has been halted in some countries due to, among other things, increased cancer rates from high intakes of synthetic folic acid.

Of course, vitamins are not the only nutrients removed from processed flour. Others include healthy fats, minerals, fiber and many phytonutrients. And, the great deception of “whole grain” is advertised everywhere — especially on packages of highly processed cereals, crackers and other junk food.

The only truly whole grains that are not junk food are the real thing, wholesome kernels of oats, rice, wheat, rye and others. Of course, most consumers have never seen wheat berries or the raw grains that occur in nature. You know they’re real because they are whole pieces of real food that take much longer to cook. For example, oats in this form take 45 minutes or more to prepare. Compare this to junk food oats, which may take one minute to cook, or less, as some products only require that you add hot water.

Will governments finally participate in reducing or eliminating junk food? I would hope so. For one reason, no country can afford the overfat epidemic and its associated long list of chronic diseases. With the reduction of the availability of unhealthy food, a dramatic drop in chronic disease would quickly follow. Not to mention raising quality of life everywhere.

What about sugar and junk food taxes? Cost, rather than intelligence or self-responsibility, is widely acknowledged by public health experts to have been the single biggest factor in reducing smoking rates. The same has started to happen with junk food. So far, New York City bans trans fat, Denmark became the first nation in the world to tax sugar, Romania has a new lower value-added tax rate on healthy foods, New Zealand is preparing to raise taxes on foods with little or no nutritional value, and other federal and regional governments are following suit. In addition, in various locations around the world there has been an increase in policies that restrict or ban junk foods in schools, and the same for television advertising during children’s shows. (But even in schools where some unhealthy foods are banned, school lunches themselves consist of significant amounts of junk food.)

Without junk food there are still plenty of delicious snacks, meals and desserts. In case you missed it, the Recipes! section of my website is the most popular one. As I've discussed many times, eating well means planning ahead and carefully shopping so you always have only healthy food at home, work and during travel. By avoiding junk food I guarantee you'll quickly feel better, be healthier and improve your overall human performance.

7. Sugar Addiction

The MAF Method has always strongly focused on helping people get off junk food, especially sugar. This is obviously an important step in improving health and fitness. Now, for the first time in human history, we are approaching a consensus on adding sugar to the list of dangerous, addictive drugs. It's complicated, but science is showing the sweet stuff is as addictive.

Alcohol and tobacco have long been accepted as harmful substances, as have illicit drugs like cocaine and heroin. Caffeine, though safer, is a drug used by billions daily. And most people use over-the-counter and prescription drugs without a thought about their potentially dangerous side-effects.

Sugar can be just as dangerous and addicting as any other drug, especially when we consider the damage it can do and the difficulty in stopping its use.

The American Psychiatric Association defines addiction as a brain disease associated with substance-use disorders, listing 11 criteria for defining it in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. Patients must fulfill at least two clinical criteria for a diagnosis of addiction. The model of sugar addiction discussed and referenced in this article meets five of these criteria, such as binge use, craving, withdrawal and others, plus additional behavioral and metabolic attributes observed in animal and human research. Substance use disorders involve impaired control of consumption such as strong social use, continued abuse despite harm, and pharmacological actions associated with tolerance and withdrawal.

Brain-Body

Sugar addiction is a complicated concept. Biological, psychological, behavioral, nutritional and social factors can all play a role, affecting both brain and body. While there is not yet an official definition or diagnosis of sugar addiction, its immediate and potent effects can act like a drug as defined by the DSM. But most people know how difficult it is to avoid it.

Sugar is defined here as sweets, sugar-containing food and beverages,

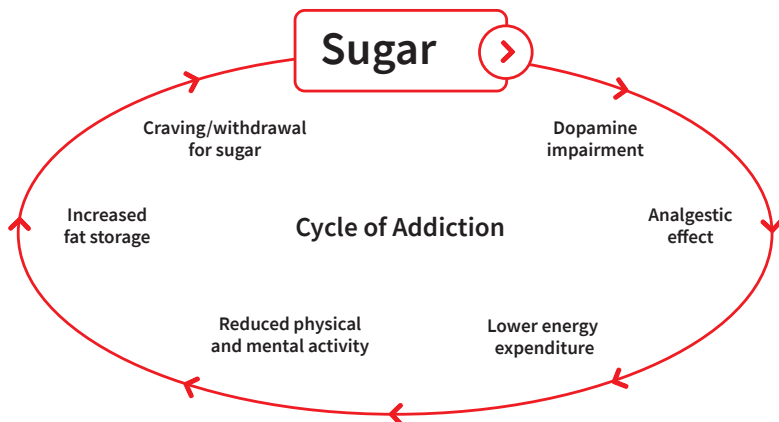
processed carbohydrates such as flour, and other foods that quickly convert to sugar after eating. Relatively small amounts of sugar consumption can have significant and wide-ranging metabolic impairment with immediate adverse metabolic effects.

While food addiction has been described and researched for many years, sugar may be the most addictive ingredient in foods. Like drug dependence, sugar disrupts the brain areas of pleasure and self-control, a dopamine reward system that includes endorphins, endocannabinoids, oxytocin, and opioid-like chemicals playing a key role in the addiction process. This system is activated every time sugar is consumed.

Many human and animal studies lend credibility to the notion of sugar as an addictive drug. Research shows that food addiction is associated with a reward deficiency, being responsible for, among others, intense cravings and withdrawal symptoms. (In addition, *carbohydrate intolerance*, also called insulin resistance, causes excess insulin production following carbohydrate intake, with higher amounts converted to stored fat, and is one of the dangerous metabolic effects.)

Scientists are still unraveling this complex biochemistry, but it's clinically clear that sugar consumption can adversely affect the dopamine system to maintain the vicious addiction cycle that includes, among others, increased body fat, sugar craving and impaired glucose metabolism.

Sugar also appears to have strong relationships to binge-eating and other disordered eating, including serious conditions like anorexia nervosa. In



addition to impaired glucose (diabetes develops at twice the rate in former/current drug addicts) and mental dysfunction, the dopamine mechanism is associated with poor fat metabolism.

Addiction Risk

While defining and diagnosing the problem is important, a key issue about sugar addiction is risk. Many people are at high risk based on specific signs and symptoms. The survey below can help people self-assess their risk for sugar addiction.

Sugar addiction survey

Make an honest appraisal. Check the items that apply to your relationship with sweets, sugar, sugar-containing food and beverage, and processed carbohydrates such as flour.

- Increased craving.
- Impulsive buying or eating.
- Repeated attempts to control use.
- Continued use despite adverse health effects.
- Regular or daily use.
- Difficulty avoiding.
- Anxiety, depression or withdrawal symptoms when reduced or eliminated.
- Social issues around use.
- Poor tolerance.
- Binge eating.
- Consume when not hungry.

While one or two checked items may refer to lower risk, three or more can indicate higher risk of sugar addiction.

The effects of sugar, which also can be caused by artificial/non-caloric sweeteners, can impair both physical and mental activity.

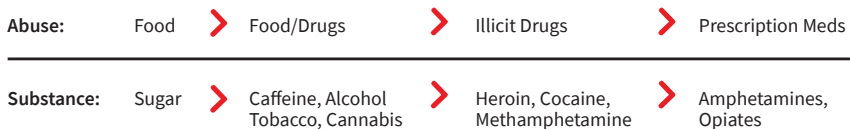
- Physically, reduced movement, including the potential lost desire to exercise, can reduce metabolic energy expenditure leading to reduced fat-burning and increased fat storage.
- Mentally, it can impair learning, motivation, focus, creativity and memory.

Addiction Hierarchy

Since the late 1970s, my clinical research with addicted patients demonstrated what I called an *addiction hierarchy* — abusing certain substances leads to increased use of other substances, from alcohol and caffeine to tobacco and illicit substances. When individuals regularly consumed two or more, sugar appeared as the primary addiction. And, when treatment was directed at eliminating sugar, eventually addressing other addictions was more successful. For example, in those who are addicted to alcohol and tobacco, eliminating sugar first made it easier to address the other two.

Over time, other research demonstrated *cross-sensitization*, the abuse of one drug leading to abuse of another. This typically begins with sugar, leading to “soft” drugs like caffeine and cannabis, to alcohol and tobacco, and sometimes to illicit and prescription drug abuse. Along the way, sugar abuse worsens. This vicious cycle is shown below.

Examples of progressive addiction from food and drugs



Sedation, Withdrawal and Craving

Sugar consumption can induce a sedative feeling due to the brain’s production of opioid-like chemicals. This drug-like analgesic effect, the feeling of sleepiness after a meal or snack containing sugar or other refined carbohydrates, is a common symptom. In laboratory animals, sugar sedation is powerful enough to inhibit pain. Long recognized in humans, it is the basis for the use of sugar in babies to relieve crying and other pain-related sensations, including its use as an analgesic for minor surgery. At any age, sugar is powerful enough to amplify the analgesic effects of morphine and other opiate pain-relieving drugs, including anesthesia.

As a separate symptom, sugar withdrawal has been recently shown to be analogous to opiate withdrawal and its associated anxiety and depression. These are common complaints temporarily experienced by some while performing the Two-Week Test, where the primary dietary adjustment is the acute reduction of sugar.

A craving is a strong desire for sugar, it engages reward, emotion, conscious control, memory and mood, and can be triggered by taste, smell, photos and other sensations. Cravings lead to impulse eating. As a powerful symptom, craving is intimately related to high rates of relapse. And, sugar craving is the symptom that makes marketing junk food a much easier task, which advertisers have long known and used to influence buying and eating behavior.

While sugar addiction does not perfectly fit into current models of other substance abuse, there is more than adequate evidence to classify sugar as an addictive drug. It is easily abused, significantly harmful to health, has a high risk for dependency, and is associated with craving and withdrawal. That it is readily available and inexpensive fuels its abuse by most people in the world.

With increasing scientific research, an even better sugar-addiction model will develop. As a consensus, it would easily be the most addicted substance worldwide, immediately instigate a massive global public health dilemma, and, hopefully, a productive response. But why wait?

8. Dietary Supplements

The seemingly unlimited array of pills, powders and tonics appear difficult to sort through. However, just as with food, there are only two types of dietary supplements.

As there are two types of cuisine in the world today — junk food, and natural food, dietary supplements follow the same model.

The fact is, we should all get as much of our nutritional needs from real food. This must begin by avoiding junk food and replacing it with healthy vegetables, berries, eggs, meats, and other natural, unprocessed and healthy items.

Health-conscious consumers avoid synthetic, artificial and other unnatural ingredients. Yet most dietary supplements contain synthetic vitamins, overly processed powders, and unnatural high-dose nutrients shown to be dangerous. Consider that:

- Most vitamin C is synthetic, listed on the label as ascorbic acid.
- Many products contain inactive nutrients less likely to be metabolized well by the body; these include all the B complex vitamins.
- Some, like the inactive B vitamin folic acid, can be particularly dangerous.
- The most popular vitamin E products have potentially unhealthy high doses, such as 400 IU, and only contain one of eight vitamin E components (as found in natural foods).
- Most dietary supplements contain fillers, coloring agents and other unnatural or unwanted ingredients, and sometimes even sugar.
- Vitamins used in fortified foods (even so-called natural products) are also mostly synthetic. (Most fortified foods are junk foods.)
- Sometimes food concentrates are used in dietary supplements, but most are heated to very high temperatures destroying many nutrients.

The science of these supplements demonstrate these problems. For example, doses of 1,000 mg of vitamin C a day have been shown to impair energy systems and endurance, and fat-burning, and can adversely affect the antioxidant system (a key immune and aging regulator).

The Science

Government agencies, such as the U.S. Food and Drug Administration (FDA), regulate dietary supplements, although much differently than over-the-counter and prescription drugs. Unlike drugs, the FDA does not approve supplements for safety or effectiveness. The result is that we don't know whether most dietary supplements are of therapeutic value, or have potential unhealthy side effects, except for those made from real foods, which contain nutrients long known to have great therapeutic effects.

One thing we do know is that many people mistakenly think gobbling down a cheap one-a-day type pill means they don't have to eat as well.

The FDA also says that dietary supplement labels may contain a cautionary statement — but the lack of such a statement does not mean no adverse effects are associated with the product, or that it is actually effective.

Most ingredients contained in most dietary supplements have not been shown to be safe or effective.

In addition, the FDA claims:

- Dietary supplements are not intended to treat, cure, or alleviate the effects of diseases. Yet the nutrients in real foods can and have for millions of years.
- Using supplements improperly can be harmful. Eating natural foods cannot cause harm (unless you're allergic or gorge yourself).
- Using a dietary supplement as a substitute for prescription drugs could be harmful, even life-threatening. Eating the right foods and avoiding the wrong ones could help you avoid, reduce or eliminate the need for medication.
- Some dietary supplements can have unwanted effects when combined with prescription drugs, or before or after surgery. This is rarely true of natural foods.
- The term natural on a label does not ensure the product is wholesome or safe.

Some dietary supplements made from food that contain natural nutrients can be valuable, safe and effective.

Here's where the food connection is important: For decades, scientists have shown the value of nutrients in food to be protective against disease and

dysfunction, effective in treating poor health, and safe.

Examples of real-food dietary supplements include fish oil, unprocessed egg white or whey protein powder, psyllium, and other herbs and spices.

In addition, many dietary supplements are taken to treat secondary problems, not the causes. For example, vitamin C for colds (associated with poor immunity), digestive enzymes for gut symptoms (often caused by junk food), B complex for stress (best to use active natural forms of all B vitamins).

Many people know my career includes formulating unique natural products, including dietary supplements. Having always recommended eating natural, healthy, organic foods for optimal nutrition, creating a unique line of dietary supplements made from the same foods was an obvious choice. After years of research and development, I produced the first line of real food-based, certified-organic dietary supplements more than 20 years ago. I continue doing that today.

9. The New Aerobic Revolution

Humans are among the most amazing endurance animals on earth. One reason is our built-in ability to have almost unlimited energy for nearly fatigue-free long-term physical activity. This comes from our capacity to use stored body fat for fueling our movements. Even the leanest among us has sufficient body fat to travel on foot for hundreds of miles. This is our aerobic system, which also helps with stable blood sugar, reducing hunger, balancing hormones, and ensuring better brain function. Fully developing and properly feeding the aerobic system is a key to achieving optimal human performance.

Defining Aerobic

Most people think they know what aerobic means. Many associate it with breathing or oxygen, confuse it with “cardio,” aerobic dance or other workouts. In fact, the term aerobics is not even a half-century old, although humans have been doing it for millions of years. In the late 1960s, Dr. Kenneth Cooper, an exercise physiologist for the San Antonio Air Force Hospital in Texas, coined the term “aerobics” to describe the system of exercise that he devised to help prevent coronary artery disease. His program included jogging, running, walking and biking. His book *Aerobics* came out in 1968 and became an immediate national bestseller.

But since that time, the number of overfat people has significantly increased. Today, over 80 percent of the world is overfat, with billions being run down, injured and unhealthy secondary to excess body fat. Not even athletes or those in the military are immune.

Cooper’s aerobic revolution was successful on paper, but it failed in practice for two reasons. Many people fell into overtraining through anaerobic workouts that neglected the aerobic system. In addition, the wrong foods were eaten to excess — foods that not only don’t fuel the aerobic body but actually suppress fat-burning.

Any workout — running, biking, walking or others — can become anaerobic when the intensity is too high. While these efforts may burn more sugar calories, the process does not train the body to burn more stored fat calories.

Calorie-Count Myths

For generations, calorie counting was the way to prevent excess accumulation of body fat, and has been the foundation for almost all weight-loss programs. Not only do most people know this has been a spectacular failure, scientists know too. Reducing calories can reduce metabolism—fat-burning—resulting in a lot of weight lost from water, not fat.

In a recent review of 31 published weight loss studies, UCLA researcher Dr. Traci Mann and colleagues found that over a period of two to five years, the majority of people regained all the weight lost, plus more. She stated that “diets do not lead to sustained weight loss or health benefits for the majority of people.”

Another study by Dr. Dariush Mozaffarian, dean of the Friedman School at Tufts University, concludes on a similar note: “Our findings suggest we should not only emphasize specific protein-rich foods like fish, nuts and yogurt to prevent weight gain, but also focus on avoiding refined grains, starches and sugars in order to maximize the benefits of these healthful protein-rich foods, [and] create new benefits for other foods like eggs and cheese.”

The myth of calorie counting has contributed to the overconsumption of refined carbohydrates, mostly in the form of flour and sugar, in an attempt to reduce body fat. But up to half of the “fat-free” calories we consume are quickly converted to fat and stored in the body. It’s time to stop the calorie-counting game. Instead, let’s live a healthy life, get more fit, and burn off body fat by developing the aerobic system.

The New Aerobic Revolution

It’s time for another revolution — of both health and fitness. One that’s easier to start or incorporate, that’s easy and practical, and with a rapid return of physical, biochemical and mental-emotional benefits.

A powerful aerobic muscle system is important for all of us. Included are those just beginning an exercise routine. The same goes for all high-performance athletes — those involved in endurance rely on it for competitive success, and strength-based athletes depend upon aerobic function to help power muscles.

Aerobic muscle fibers are the cells associated with fatigue-free, fat-burning

activities. They are the primary form of physical support for our joints, bones, other muscles, and essentially the entire body. Aerobic fibers are mixed into virtually all our muscles alongside smaller numbers of anaerobic fibers, which are involved in very short-term high-intensity and strength activities.

The function of the aerobic system also affects (and is affected by) the body's natural stress response. When the workout gets intense enough, our body secretes stress hormones such as adrenaline and cortisol to increase our heart rate and allow the anaerobic mechanism to kick in. This means that when the aerobic system is underdeveloped, the body has to rely on the anaerobic system and sugar-burning to keep us functioning day-to-day. The result is increased stress, reduced fat-burning, and the accumulation of excess body fat.

Unfortunately, problematic social trends such as “no pain, no gain” and the combined popularity of junk food full of refined carbohydrates, have impaired aerobic function in the majority of people.

The result is what I call the aerobic deficiency syndrome or ADS.

The Aerobic Deficiency Syndrome

This condition can be devastating for anyone, including athletes, since it contributes to reduced energy and endurance. It is often associated with burnout and overtraining. A variety of chronic conditions that we think of as problems themselves are sometimes important signs and symptoms of ADS.

The first and most obvious of these is chronic fatigue. While sometimes caused by other conditions, chronic fatigue is typically due to poor fat-burning, resulting in greater reliance on sugar for energy — not just during a workout but at all other times of day and night.

Another symptom of ADS is increased body fat: because fatigue reduces fat-burning activity, less fat is used for energy and more remains stored throughout the body. Excess body fat also promotes chronic inflammation, which can trigger pain, injuries, chronic diseases, and increase the risk for infectious disease.

The muscles that support the body are primarily aerobic ones, and the lack of good aerobic function is a common cause of injury. The most frequently injured areas include the low back, knee, ankle and foot.

Aerobic deficiency means that the anaerobic system is working harder. Elevated exercise heart rates lead to high levels of the stress hormone cortisol. In turn, this can reduce estrogen, testosterone and other hormones in both men and women. These imbalances can impair water and electrolyte regulation, adversely affect muscles, bones and sexual function, and cause premenstrual syndrome and menopausal symptoms in women.

In addition to eating junk food, other common dietary problems associated with ADS include low intakes of fat and protein, and other nutritional imbalances such as low vitamin D, iron, vitamins and minerals, and phytonutrients.

Real Aerobic Activity

Many types of easy aerobic workouts can provide benefits that will build the aerobic system in the long term. Activities such as running, biking, swimming and walking can accomplish this as long as the intensity, the heart rate, of these workouts is not too high.

Decades ago I discovered that it is necessary to take a period of three to six months to *exclusively* develop the aerobic system. A heart rate monitor is an excellent tool to monitor aerobic development, when paired with the MAF 180 Formula as discussed in Chapter 4.

Your heart rate is an accurate indicator of intensity — lower heart rate exercise tends to be aerobic while performing the same workout with a higher heart rate could be anaerobic. This does not mean you will always be slower, as building the aerobic system allows the body to move faster over time. A runner, for example, will get faster over time with the same heart rate and level of effort. In order to figure out if you are exercising aerobically, follow the 180-Formula and complete the MAF Test.

This is where the issues get more complicated. Done in the short-term, almost any activity — even very hard efforts — can help build the aerobic muscles. But continue these kinds of exercise routines for too long and your body can break down. You'll risk becoming injured, fatigued, and unhealthy, a casualty of the “fit but unhealthy” crowd. Instead, the best approach is to first build a great aerobic system.

For a workout to be truly aerobic, you should be able to exercise the same way for many weeks and months, experiencing continued benefits, while getting faster or be able to generate more power at the same HR. When

you've finished each workout, you should feel great — not tired or sore, and certainly not ready to collapse on the couch. Nor should you crave sugar or other carbohydrates: aerobic workouts program your body to burn stored fat, not sugar. Craving sugar during or after a workout may indicate it's anaerobic.

If you're not getting the benefits you want from working out, it's possible that your aerobic system is not being properly developed.

10. Addressing Stress

Stress is such a powerful influence on health and fitness that even if you are doing everything right in terms of diet, nutrition and exercise, excess stress can prevent you from getting all the benefits you want. Fortunately, excess stress is not without a remedy—understanding it is the first step in properly addressing it.

Prolonged periods of too much stress can contribute significantly and directly to many conditions, ranging from reduced quality of life to deadly diseases such as cancer, heart disease, Alzheimer’s and many others. It contributes to fatigue, bacterial and viral infections, inflammatory illness, blood-sugar problems, weight gain, intestinal distress, headaches and many other disorders. Stress-related problems account for more than 75 percent of all visits to primary-care physicians and are responsible each day for millions of people needing to take time off work and school. So, stress comes with an economic price tag as well as wear and tear.

What’s also important about excess stress is that it interferes with sleep, the most important aspect for rest and recovery from stress. And, higher levels of stress require more rest and sleep, while inadequate sleep can allow stress to accumulate. All adults require 7-9 hours of uninterrupted sleep each night (more for children).

Stress is a normal part of health and fitness. The body has a great coping mechanism for stress called the HPA axis. Starting in the brain, which senses all stress, this *hypothalamic-pituitary-adrenal axis* releases hormones and affects the nervous system to allow the body to better adapt to stress. However, too many stressors, and their accumulation, are clearly harmful. Fortunately, many can be eliminated once we recognize them.

Let’s first define the three types of stress.

Physical Stress

Physical wear and tear are common stressors on the body and brain. Overworking our muscles is one example. While a mild physical stress can make exercise beneficial, too much of it and/or inadequate recovery from it

can potentially result in excess stress and harm us.

Wearing shoes that don't fit just right is another example of physical stress. While you don't always feel it in your feet, it may cause symptoms in the knees, low back or elsewhere in the body. Likewise, dental stress can affect more than your mouth, often causing intestinal dysfunction, headaches, or shoulder, neck or spinal pain. Other physical stress includes poor posture, eye strain, and any situations that adversely impacts the mechanical body, such as too much sitting. While physical stress can cause mechanical problems, it can also lead to biochemical or mental-emotional ones.

Biochemical Stress

Environmental pollution commonly causes biochemical stress in the body, both from bad indoor and outdoor air, and through food and water. Dietary and nutritional imbalances such as too much or too little nutrients, excess caffeine or alcohol can be a stress too, affecting our hormones, enzymes, neurotransmitters and other biochemistry. Symptoms of this type of stress can include fatigue, insomnia, gut dysfunction, or even physical and mental-emotional problems.

Mental-Emotional Stress

This is what most people are familiar with when the word stress is mentioned. Symptoms of excess include tension, anxiety and depression. This can easily contribute to pain, or a loss of enthusiasm or motivation. Mental-emotional stress can also affect cognition, including sensation, perception, learning, concept formation and decision-making.

And, of course, mental-emotional stress can lead to physical and biochemical problems as well.

Physical, biochemical and mental-emotional stress can come from anywhere: your job, family, other people, your memory and emotions, infections, allergic reactions, trauma and overexertion, even the weather. While we have an effective adaptation mechanism that tames stress, managing it well is also a key aspect of avoiding adverse health or fitness outcomes.

Managing Stress

Usually people have multiple sources of stress, and frequently all three

types. Stress is also cumulative. Some people accumulate so much stress they lose track of it, which becomes more stressful. The response to a physical stress from a hard weekend workout may be amplified by Monday's biochemical stress of too much coffee or eating bad food, further compounded with a family-related mental-emotional stress on Tuesday and another with the boss on Wednesday. All of this will affect your performance at an important meeting on Friday.

The weather is also a potential stressor, with certain people more vulnerable. Weather stress may affect us physically, biochemically or mental-emotionally. Extremes in temperature or humidity, very low barometric pressure, and excess sun are examples. In addition, Seasonal Affective Disorder (SAD), due to reduced sunlight typically in the fall and winter can cause mood disorders, depression and fatigue.

Being aware of your stress is a key feature in addressing and avoiding excess.

Make Your Stress List

First, be aware of your stresses by writing them down. It may seem simple, but this may help you notice that certain stressors can easily be reduced or eliminated. It's surprising how much stress can be deleted from your life this way. Finally, with fewer stressors, your body will better adapt or compensate to the remaining stress you may not be able to change right now.

This process is more effective when you write out each stress, on paper or digitally. Once you can see your stress listed, it becomes easier to manage. Here are the steps:

- On a page, make three columns, one for each stress category: physical, biochemical and mental-emotional.
- In each category, write down your related stressors. This may take several days to complete since you probably won't think of all your different stresses right away.
- Next, prioritize them by placing the biggest stress of each category on top.
- Now circle, underline or bold the stressors that you can control. This may include unhealthy eating habits like eating junk food, drinking too much coffee, not exercising properly, or wearing bad exercise or work shoes.
- Then, work on reducing or eliminating one of these stressors at a time,

beginning with the easiest; or, ideally, begin with those on the top of the list; or, if you can handle it, work on one stress at a time *from each category*. Keep the process comfortable and manageable.

- For now, draw a line through those stressors that you can't control, but don't delete them. If they can't be address, don't worry about them for now. Many people expend lots of energy on stresses they can't or won't do anything about. Examples include job stress or the weather, though in reality, almost any stress can be modified or eliminated — it's just a question of how far you're willing to go to reduce stress.
- With success as the weeks and months pass, you might reconsider some of the items you've crossed off. You may realize that changing jobs is a must, or moving to a more compatible climate is necessary.

As you succeed in eliminating or modifying various stressors one by one, cross them off your list, then move on to others.

More Strategies

In addition to your stress list, you may be familiar with other strategies for dealing with stress. Regardless of how silly or common sense these may seem, they can be very effective and help you think of other helpful strategies particular to your situation. Here are some:

- Unless it's a must, learn to say no when asked to do something you really don't want to do. Ask yourself if you really want to do this.
- Likewise, as much as possible, avoid things you're not good at or don't enjoy, while focusing on things you are good at, especially your passions.
- Live in the moment, the present: Be here now!
- Decide to not waste time dwelling about the past or the future, especially the what if's.
- Regular relaxation techniques are potent. One of my favorite and most effective is the 5-minute Power Break (respiratory biofeedback) described on the website.
- Listening to the music you love, taking an easy walk by yourself, and other enjoyable activities can also be great ways to relax.
- When you're concerned about something, talk it over with someone you trust.
- Simplify life. Start by eliminating trivia by asking: "Is this text, email, call or conversation really important or enjoyable?"
- Each morning ask: "What fun things are planned for today?"

- Know your passion, and pursue it.
- Understanding and addressing all stress is a key component of improving and optimizing health and fitness.

11. The Overfat Pandemic

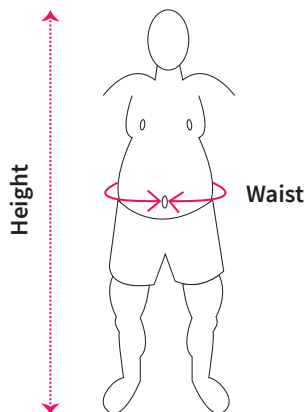
My research shows that more than 80 percent of people in the world have enough excess body fat to contribute to poor health and fitness. The prevalence of this global overfat pandemic — besides being a trigger for most chronic disease and physical impairment — also may be fueling viral infections such as the Novel Coronavirus.

Excess body fat sufficient to impair health and fitness — *overfat* — is a serious but hidden pandemic. Overfat is also a primary cause of reduced quality of life and increased healthcare costs. Overfat can occur in those who are overweight, obese, and in up to 40 percent or more of those who are normal-weight.

While body mass index (BMI), along with the bathroom scale, are common measures of overweight and obesity, they cannot determine if one is overfat. Measuring the waist-to-height ratio is a better indicator — the waist should be less than half the height in inches or centimeters.

Are you overfat?

Your waist should be half your height



While the common belief is a lack of exercise causes excess body fat, the overfat condition actually has ballooned despite increasing numbers of people who work out. This paradox is observed globally not only in the general population, but in athletes and those in the military.

Rather, the largest contributing factor to the global overfat pandemic is increased consumption of processed carbohydrates, especially sugar. High amounts of refined carbohydrates convert to fat that's stored in the body, while at the same time it impairs our ability to burn body fat for energy, so it stays stored.

Viral Infections

In addition to overfat causing chronic disease and physical impairment, it is an important and little discussed risk factor in infectious viral diseases (not to mention bacterial and other microbial infections).

Those who are overfat may also be less responsive to vaccines. The scientific data from COVID-19 shows that those most vulnerable to the infection includes people with diabetes, hypertension, cardiovascular disease and chronic inflammation — conditions caused by excess body fat.

After the 2009 swine flu (H1N1) pandemic, it was discovered that obesity was an independent risk factor for infection. Today, we know that obesity is the tip of a large overfat iceberg. Increased abdominal fat in particular may be most damaging to immune function and overall health. Excess body fat contains numerous different immune cells that, unlike healthy fat, do not function properly to protect the body against infection.

Public health officials and clinicians worldwide already have sufficient, cost-effective assessment and treatment tools available to reverse the overfat pandemic, yet so far action has been minimal. Fortunately, you can manage and personalize our own health and fitness by using the methods in this ebook to reduce excess body fat.

12. How to Grow Younger

“How old would you be if you didn’t know how old you were?”

— Ageless Hall of Fame baseball pitcher Satchel Paige

If you feel older than you are, change it! Graceful or successful aging occurs only with a healthy and fit body and brain. One answer to the age-old question on how to restore youth is this: *Don’t lose it so quickly*. The process of aging is inevitable, so there is no such thing as *antiaging*. However, we do have significant control over the pace of it — so it’s never too late to start growing younger.

How old are you really? We have two ages:

Chronological age refers to how old we are in years. This is a fixed timeframe.

Physiological age refers to how well our body functions — better, worse or the same as our chronological age.

We have significant control over this through lifestyle, which can help us become physiologically younger than our chronological age. Very good health and fitness reduces risk factors for chronic disease, physical impairment, and infectious disease, which all reduce our physiologic age. So it really is possible to slow the pace of aging. This would imply successful aging, as opposed to average or debilitating aging.

Three key factors that can strongly influence aging are highlighted below.

Physical Aging

As part of improving health and fitness, a powerful aerobic system significantly influences aging.

Aerobic muscles help our antioxidant defense to work well. Even if you obtain all the necessary antioxidants, they can only do their job if you have functional aerobic muscle fibers.

The breakdown of free radicals that promote aging occurs in cellular mitochondria — the body's little aerobic motors — that lie within aerobic muscle fibers. Those in better aerobic shape (who have more functional aerobic muscle fibers and mitochondria) are more capable of controlling free radicals than those who are out of shape. This is one reason easy aerobic exercise improves immunity, especially at the heart rate determined by the MAF 180 Formula.

Anaerobic exercise, which occurs when working out at high intensities, and with tradition weight training, generates much more oxidative stress — up to a 120 percent increase over resting levels. This is the result of physical damage to muscles, lactic acid production, and higher oxygen uptake, which may increase tenfold during exercise. We can adapt to this stress with adequate aerobic function, and when we allow sufficient time for recovery, which, for most people means a maximum of one or two hard training efforts a week.

Another very common physical feature of increased aging is reduced muscle strength, which can lead to a wide range of physical imbalances affecting posture and gait. Among the images of poor aging are people who do not stand, sit or move erect. Their lower (lumbar) spine is flexed, and they are “bent” forward having lost their natural spinal curve that helps maintain a healthy-looking upright posture. With a bent spine, individuals become shorter. This well recognized clinical condition is called the *bent spine syndrome* (BSS). It's a spectrum disorder, from mild and moderate to a more severe condition depending on a person's level of health and fitness, and physiological age. It affects more than just the spine. The feet, pelvis, abdomen, and head significantly affect balance, posture and movement. In addition, fatigue develops quickly in those with BSS during daily physical activities. BSS is also caused by chronic inflammation, further influencing blood pressure, heart rate, breathing, gut and sexual function, the ability to control stress — and pain.

Biochemical Aging

Physical and mental energy for the brain and body is a primary driver of aging — the high energy associated with increased fat-burning allows better function on all levels. This influences, hormones, digestive enzymes and neurotransmitters that allows the brain to think and perform well, and many other factors.

Environmental influences also play a key role in aging. For example, low levels of vitamin D, typically from inadequate sun exposure, can increase the risk of chronic disease, physical impairment and infections, and adversely influence aging.

Keeping our homes and work environments as free from pollutants as possible is another important factor in aging. Consider these sources of unhealthy chemicals:

- New building or home furnishing materials such as carpet, furniture and other household items, including construction materials, can quickly pollute the indoor air you breathe.
- Cosmetics and toiletries often contain chemical fragrances and other potential toxins. These can include soaps, deodorants, shaving products, hair spray and mouthwash. Use products without added fragrance and chemicals.
- Clean out your attic, basement, closets, or other areas in which you may have stored potential pollutants such as paint cans, aerosols and cleaners. These products constantly leak vapors. Store all needed chemicals in an outside garage or shed and discard all items that have outlived their usefulness.
- Vent your garage. Your car, lawn mower and other things constantly leaks fumes from gasoline, oil and other chemicals. In homes with an attached garage, these chemicals can easily find their way into your living areas.

For indoor air pollution control, keep two windows partially open (preferably on east and west sides of the home) to vent your environment. In addition, houseplants can naturally clean the air — plant leaves filter the air, and the roots break down toxic chemicals into less harmful ones. The best plants for the job include elephant ear and lacy tree philodendrons, golden pathos, and the spider plant. Five to ten plants per 1,000 square feet of living space is often recommended, or one to three plants per room.

Mental-Emotional Aging

Successful aging also includes our daily need for love, fun, social interaction and the ability to follow our passions. When we become healthier and more fit, we feel better mentally and emotionally, and these factors are more likely to materialize. It includes a remarkable ability to accept the losses that come with age but not be stopped by them.

All these factors are integral parts of the MAF Method that you will encounter and address in personalizing your health and fitness.

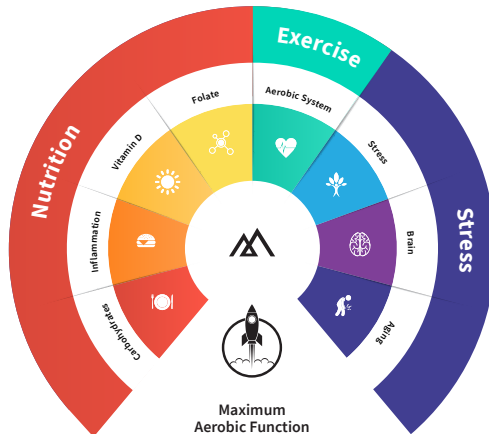
Epilog: Let's Begin Your MAF Journey

Congratulations!

By reading this ebook you have taken the first big step toward improved health and fitness — and all around human performance. The next important steps in this journey will help you begin the process of personalization in the MAF Method section of my website. You can perform this on any online device.

[View Website](#)

philmaffetone.com/method/



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