



METABOLIC HEALTH MATTERS!

Addressing the whole person struggling
with weight and/or diabetes

Dr. Sandra I. Sobel



SUMMON HEALTH
ACTIVATE METABOLISM. REVERSE DISEASE.



The following information contained in this e-book serves to provide education about metabolic health and ways in which lifestyle and medicines can be applied. While this e-book not only provides an overview, but also several examples of specific details, it is not exhaustive in content. In addition, this is not intended for personal medical therapy use, and you should still consult with your physician regarding any specific health questions you might have.



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WELCOME

Welcome to, “Metabolic Health Matters! Addressing the whole person struggling with weight and/or diabetes.” I am Dr. Sandra I. Sobel, a board-certified physician in Endocrinology, Lifestyle Medicine, and Obesity Medicine with specific expertise in metabolic health. I am also the founder of Summon Health.

As an endocrinologist, I specialize in the treatment of metabolic health conditions that include metabolic syndrome, insulin resistance, pre-obesity, obesity, pre-diabetes, type 1 and type 2 diabetes, fatty liver disease, and polycystic ovarian syndrome. After several years of working in a traditional academic medical practice, I realized that the traditional approach to treating these metabolic health conditions often proved to be both limited and frustrating for both patients and physicians.



The goal for this e-book is to provide you with essential information about metabolic health.

The reasons for that are complicated, but two common reasons are interconnected:

- 1 The lack of integrating a whole-person approach to treating these metabolic health conditions.
- 2 The limited amount of time traditional healthcare systems dedicate to addressing these important health concerns.

My goal for this e-book is to provide you with essential information about metabolic health, what conditions develop when metabolic health is compromised, and what steps can be taken to summon and improve your metabolic health. So, let's get started!



CHAPTER 1.

WHAT IS METABOLIC HEALTH?

We used to think that determining metabolic health was as simple as calculating energy in and energy out. But it's not. While it is true that the food and drink going into our bodies (energy in) and the energy generated by our bodies (energy out) are important contributors to metabolic health, it is so much more complicated than a simple math equation.

Over recent years, the field of medicine has come to understand that metabolic health is best defined as the health state resulting from the complex interplay of our energy inputs and outputs, hormone systems, daily engagement with our bodies (physical activity and sleep), nutritional choices, and our capacities to regulate stress. When these components are working harmoniously together, our metabolic health is optimized. If any one of these components is thrown off, our metabolic health can become compromised. And when our metabolic health is compromised for too long, serious medical conditions can develop, so we need to prioritize it. Our metabolic health matters!

One important early sign of compromised metabolic health is the accumulation of unhealthy fat deposits in areas, like the abdominal region. As unhealthy fat deposits



When energy inputs and outputs are working harmoniously together, our metabolic health is optimized.



continue to build and eventually overrun what our bodies can effectively store, this fat begins to infiltrate other organs, such as the liver, muscle, pancreas, and even heart. This unhealthy fat initiates a cascade of inflammatory responses and chaotic hormonal signals, which leads to insulin resistance and metabolic syndrome, silently, yet menacingly, setting the wheels in motion to more advanced disease states such as pre-obesity, obesity, pre-diabetes, type 1 and type 2 diabetes, fatty liver disease, and polycystic ovarian syndrome. These are the medical conditions that make up metabolic health disease states.

WHY YOUR METABOLIC HEALTH MATTERS:

Metabolic Syndrome, Insulin Resistance, and the Metabolic Health Conditions Impacted

Cardiovascular disease is the number one cause of death in the United States¹, but we need not be resigned to this alarming statistic. If we think about cardiovascular disease as representing the endpoint of a long road of compromised metabolic health, there are certain signs and conditions that develop earlier that can alert us of the path we're headed down. Did you know that obesity, diabetes, and fatty liver disease are known risk factors for this number one killer? Even earlier signposts for compromised metabolic health can be seen when metabolic syndrome or insulin resistance develops. There are ways to tune into this.

I believe that the overwhelming majority of us would start to make changes in our health—today—to avoid becoming a part of this concerning statistic if we understood just how much power we hold to influence this process. I'm a true believer that knowledge empowers, so I will walk you through what I think are important details—from a physician's perspective—that will help you as you start to make changes in your metabolic health.

What's Ahead

It's important that we begin with a review of the measurements and tools a physician uses to determine your metabolic health. Then, I will describe the common metabolic health conditions I see in my clinic. Once we cover those background topics, I can shed light on the six spokes that make up the comprehensive whole-person approach that I use to activate or maximize metabolism and treat, or even reverse, metabolic health disease.





CHAPTER 2.

HOW DO WE MEASURE METABOLIC HEALTH?

To determine where you are along the spectrum of optimized to compromised metabolic health, a medical doctor can evaluate your metabolic health by reviewing your medical history, performing a comprehensive medical exam, and ordering labs. Expert review of all this information with your physician is an important step along the path of determining your metabolic health.

First, I'll share the important aspects of a physician's physical exam used to assess your metabolic health and we will review some of the tools a doctor may use in their assessment. There are some important signs from your body that point to compromised metabolic health. Then, I'll discuss the labs that a physician orders and reviews to help determine the status of your metabolic health.

A METABOLIC HEALTH PHYSICAL EXAM



Height, Weight, BMI

Important metabolic health measures that are quick, easy, and low cost include height and weight. With both values, we are able to calculate a value called the body mass index, or BMI, which is calculated as kg/m^2 . The value



we get with this calculation falls along a continuum which may help provide insight into metabolic risk. A BMI equal to or greater than 25 indicates that your metabolic health may be compromised (although it is important to note that certain ethnicities have different thresholds).



Waist Circumference

Waist circumference is another important measure, yet it is rarely done! However, when combined with information such as the BMI, it can provide important information about whether the fat deposits I mentioned earlier are collecting in the mid-part of your body. Studies show that an increased waist circumference is connected to an increased risk of heart and metabolic diseases such as high blood pressure, high cholesterol, heart disease, diabetes, fatty liver disease, and polycystic ovarian syndrome².

Normal values for men and women are:

Men: ≤ 40 inches or 102 cm

Women: ≤ 35 inches or 88 cm

METABOLIC HEALTH PHYSICAL EXAM FINDINGS



Acanthosis nigricans

This is the name of the physical exam finding that describes darkening of the skin folds behind the neck, armpit area, or groin region. Many individuals have frequently mistaken it for dirt and have even tried vigorously scrubbing the area to get rid of this appearance. However, it has nothing to do with the cleanliness of the area. It is a thick, velvety, dark change in the skin that is indicative of insulin resistance. When this is found on a physical exam, it alerts a physician to continue to investigate your metabolic health risk.



Skin tags

If skin tags are present, they can indicate the existence of insulin resistance and/or elevated cholesterol levels. If they are seen, your medical team may consider ordering certain lab tests to further understand what your metabolic health risk is.



ADVANCED TOOLS THAT MEASURE YOUR BODY COMPOSITION, A KEY COMPONENT OF METABOLIC HEALTH

While the above physical exam measures are quick and simple to get helpful general information about your metabolic health, there are more insightful instruments available to determine body composition. When you step on a scale, that number—your weight—is only a rough estimate of the important information needed.

When it comes to using your weight as a measure of your metabolic health, what is truly important is determining what percentage of your weight is muscle mass and what percentage is fat mass. In addition, if we can determine where in your body the fat is distributed, we can start to get very specific indicators about your metabolic health risk.



The weight on your scale is only a rough approximate for measures of health.

What is Fat Mass?

Fat mass is the proportion of one’s entire body mass that is composed of fat, or adipose tissue. This measure is commonly expressed as a percentage. There are values that represent the ranges for normal and disease risk, depending on gender.

Those ranges are³:

Classification	Fat Mass % Women	Fat Mass % Men
Essential Fat	<15	<10
Athlete	15-19	10-14
Fitness	20-24	15-19
Acceptable	25-29	20-24
Pre-obesity	30-34	25-29
Obesity	≥35	≥30



Body Composition Measure: Bioimpedance Analysis (BIA)

BIA uses small, painless electrical currents to obtain body composition measures. In the process, the current is emitted through one of the electrodes that a person steps onto or takes hold of and travels through the body, ultimately reaching another electrode. The amount of time this small electrical current takes to travel through fat tissue is longer than the amount of time it takes for this same current to travel through muscle³. This is how BIA calculates the difference between fat mass and skeletal muscle mass. Combine this with a waist circumference measurement and now, we can also get a measure of visceral adipose tissue!

Pros: Easy and quick to perform. High accuracy when compared to the gold-standard MRI if done on a medical-grade machine.

Cons: Cannot be done if the person has a heart device. Accuracy is dependent on water balance³.

Body Composition Measure: Dual-Energy X-Ray Absorptiometry (DXA)

osteoporosis risk assessment). This machine can also be used to determine the density of other body tissues, such as fat mass and skeletal muscle mass. A very small amount of radiation is passed through different parts of the body and X-ray images are taken that can be used to determine body fat and muscle distribution.

Pros: Relatively easy and quick to perform. High accuracy. Not dependent on water balance.

Cons: Expensive, not as readily accessible³.

Body Composition Measure: Magnetic Resonance

This tool, used to determine body composition, is considered the gold standard machine for measuring accurate body composition. Magnetic fields are used to calculate an individual's body composition.

Pros: Gold standard, high accuracy, painless³.

Cons: Very expensive, takes a long time to complete. Cannot be done in individuals with metallic hardware.



CHAPTER 3.

METABOLIC HEALTH CONDITIONS

Now that I have reviewed how your medical provider can start the process of evaluating your metabolic health, let's discuss symptoms and conditions that develop when metabolic health is compromised.

METABOLIC SYNDROME

Metabolic syndrome is made up of three or more physical exam findings and/or laboratory findings, each associated with cardiovascular disease risk. If each individual risk factor is looked at in isolation and not interpreted within the context of the whole person or the other risks that exist, individuals may not be aware that they, in fact, have metabolic syndrome. Yet, when someone discovers they have metabolic syndrome, the moment is prime to intervene. The changes implemented at this stage in the metabolic health continuum will be exceedingly impactful on stopping, or even reversing, the progression to metabolic and cardiovascular disease.



When metabolic syndrome is recognized, the moment is prime to make changes to stop or reverse metabolic disease progression.



The classification of metabolic syndrome that I use is the one set forth in the National Cholesterol Education Program’s third report of the Adult Treatment Panel, or NCEP ATP III^{3,4}. There are five measures included in the characterization of metabolic syndrome. Someone who has **three or more** of these measurements meets the definition of metabolic syndrome:

	Waist Circumference	Triglycerides	HDL Cholesterol	Blood Pressure	Fasting Glucose
Men	>40 inches	≥150 mg/dL	<40mg/dL	≥130/≥85 mmHg	≥100 mg/dL
Women	>35 inches		<50 mg/dL		

INSULIN RESISTANCE

Insulin resistance is a hormonal change that develops early in metabolic disease. Recall how I discussed how fatty deposits can make their way to organs such as the liver, pancreas, and heart. The excess unhealthy fat releases harmful hormones and immune system triggers that set off an inflammatory response within the body. Troublingly, the inflammatory chaos occurring in the body often goes largely unnoticed on the outside since our bodies are trying to compensate and resolve this problem on their own, from within. However, repeated inflammatory insults over time continue to assault the body, and eventually, the body’s attempts to compensate can no longer keep up. The pancreas’s ability to produce insulin is one hormonal change that begins to fail under this distress.



At first, inflammation triggers increased insulin release from the pancreas³. Unfortunately, the quality and potency of the insulin that the pancreas is now trying to produce are inferior compared to insulin released under normal health circumstances, because of the excessive inflammation. In addition, this inflammatory process also impacts the ability of insulin receptors on cells to appropriately respond to the circulating insulin in the bloodstream.

These changes are collectively known as insulin resistance. Once our insulin signaling system is in disarray, metabolic disease states can manifest. These conditions include pre-obesity/obesity, type 2 diabetes, PCOS, and fatty liver disease³. All of these metabolic conditions are associated with cardiovascular disease, so it is vitally important that we intervene as early as possible with effective treatments.



PRE-OBESITY: BMI range of 25-29kg/m² in both men and women and/or percent fat mass of 25-29% in men and 30-34% in women³.

OBESITY: BMI of \geq 30 in both men and women and/or percent fat mass of \geq 30% in men and \geq 35% in women.

PRE-OBESITY AND OBESITY

Pre-obesity? What is that? First and foremost, obesity is a disease. Someone is not obese, someone has obesity, just like someone is not diabetic (the disease does not define them), the person has diabetes. And so, just like in other diseases where we have a variety of cutoffs from labs and imaging tests and physical exam findings that establish a diagnosis, there are also signs that start to develop prior to the full onset of disease.

Just as some people have been told they have pre-hypertension or pre-diabetes, so too, someone can have pre-obesity. Others may be more familiar with the term, 'overweight,' which has been the more commonly used work for this category over the years. You can expect this language to change since renaming it as pre-obesity is helpful and important for individuals to understand the future health risks at stake.

Complications³:

Complications related to obesity can fall into one of two categories: complications from the fat mass and complications from the unhealthy or 'sick' fat itself.

Fat Mass Complications

- Congestive heart failure
- Obstructive sleep apnea
- Osteoarthritis
- Gastrointestinal reflux disease
- Cellulitis

Sick Fat Complication

- High blood sugar
- Cardiovascular disease
- High cholesterol
- Cancer
- Fatty liver disease

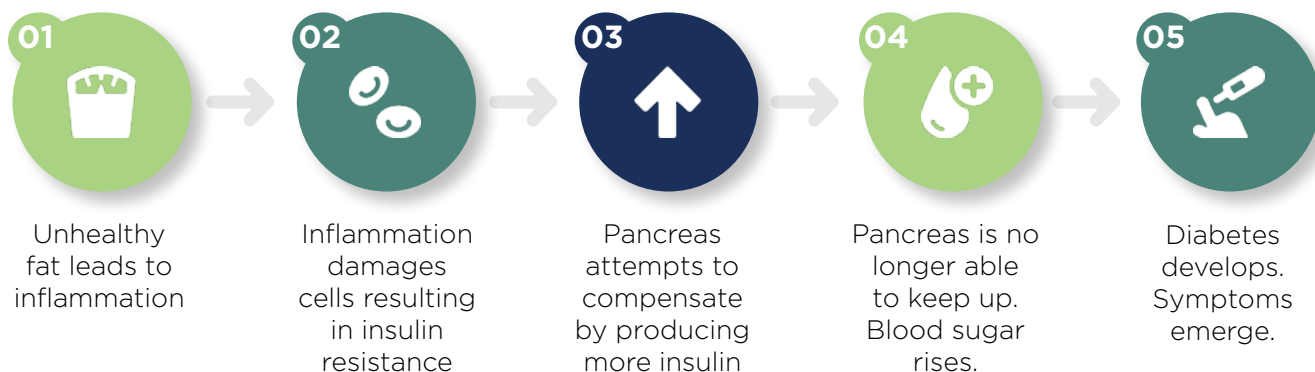


DIABETES

Type 2 Diabetes

Type 2 diabetes affects over **34 million people** in the United States and 88 million individuals have pre-diabetes. Medical costs are over 2 times higher in people with diabetes compared to those without the disease⁵.

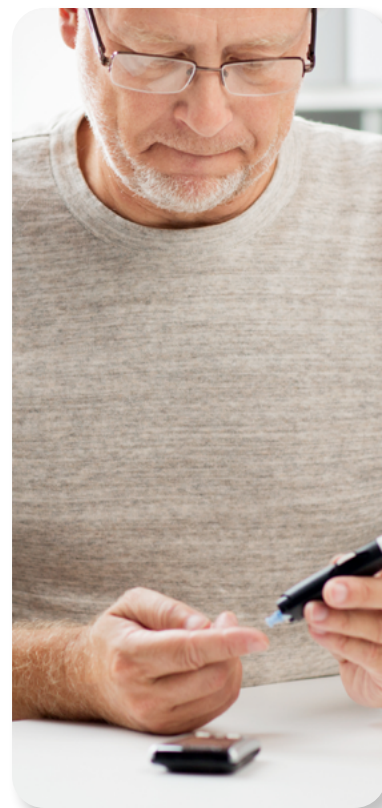
How does type 2 diabetes develop?



Remember what we reviewed in the insulin resistance section above and recall that excess unhealthy fat releases harmful hormones and immune system triggers that set off an inflammatory response within the body.

This inflammation leads to the development of several untoward events, such as damage to the insulin-producing cells in the pancreas which affects the quality of insulin being made and damage to the insulin receptors on cells throughout the body. These two insults lead to insulin resistance.

The pancreas tries to compensate for these insults by increasing insulin production, and this rise in insulin is seen even before your blood sugars start to go high. This means that by the time we see elevations in blood sugars (even mild ones), the pancreas has been working overtime for quite a while. Eventually, the pancreas reaches a point where it cannot keep up with the body's demand for insulin and at that point, blood sugars keep rising, symptoms develop, and diabetes is eventually diagnosed³.





Type 1 Diabetes

Type 1 diabetes affects just under **2 million individuals** in the United States. The prevalence is rising and it is estimated that by the year 2050, 5 million individuals will have type 1 diabetes⁶. Type 1 diabetes is an autoimmune disease. The body mistakenly identifies the insulin-producing cells in the pancreas as foreign and attacks these cells. When the number of insulin-producing cells in the pancreas decreases, insulin levels drop and blood sugars rise.

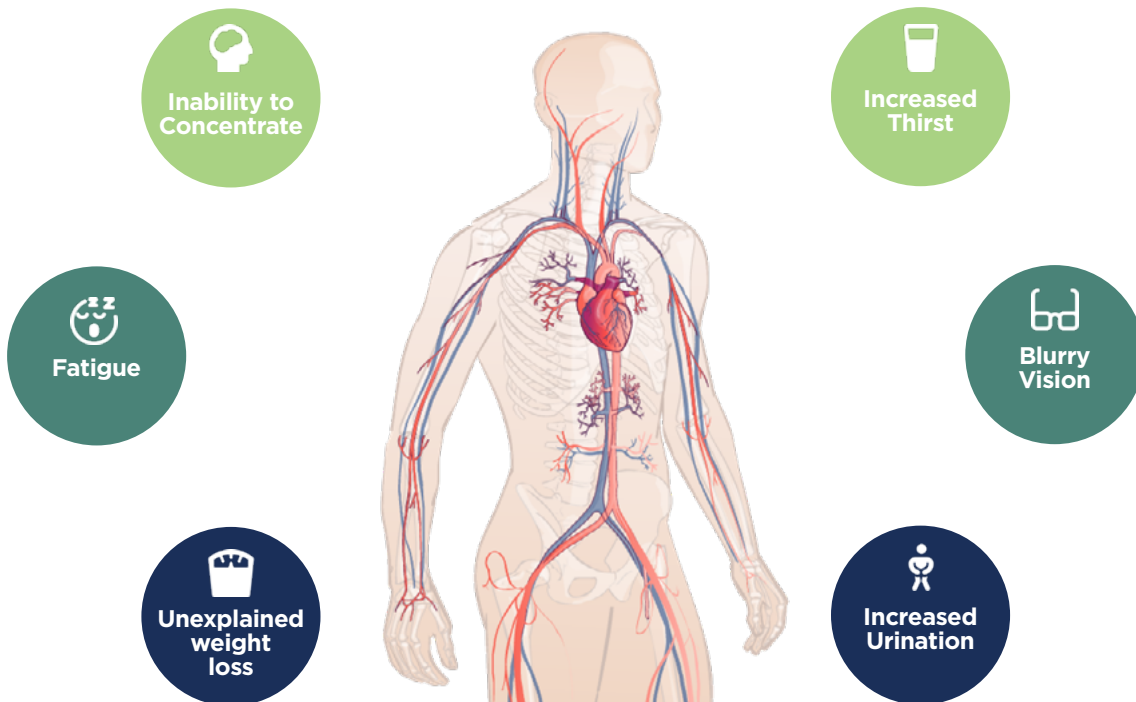


TYPE 1 DIABETES: an autoimmune disease in which the body attacks insulin producing cells.

While there is no cure yet for type 1 diabetes, research is fervently underway. Presently, there are several different approaches to type 1 diabetes treatment. Since the body is not able to produce insulin, insulin replacement therapy is essential in the treatment of type 1 diabetes. Diabetes treatments shown to reduce blood sugar and improve quality of life include diabetes technologies such as continuous glucose monitors, smart insulin pens, and insulin pumps.

Over recent years, there has been an increasing awareness that insulin resistance can develop for people with type 1 diabetes, despite their low insulin production⁷. Because of this, treatments that address insulin resistance have become an essential component of the whole-person approach to type 1 diabetes management^{7,8}.

Symptoms of Diabetes⁹





Abnormal glucose measures can be broken down into pre-diabetes and diabetes⁹:

Pre-diabetes

Measurement	Result
Fasting glucose	100-125mg/dL
2-hour oral glucose tolerance test	40-199mg/dL
Hemoglobin A1C	5.7 – 6.4%

Diabetes

Measurement	Result
Fasting glucose	≥ 126 mg/dL
2-hour oral glucose tolerance test	140-199mg/dL
Random glucose with symptoms	≥200 mg/dL
Hemoglobin A1C	≥6.5%

Complications of diabetes include⁹:

- Microvascular (small vessel)
- Diabetic Retinopathy (vision)
- Diabetic Neuropathy (nerves)
- Diabetic Nephropathy (kidney disease)
- Diabetic Gastroparesis (gut paralysis)
- Macrovascular (large vessel)
- Coronary Heart Disease
- Stroke
- Peripheral Artery Disease (blood flow problems)
- Cardiomyopathy (abnormal heart muscle changes)



CHAPTER 4.

WHOLE-PERSON APPROACH TO METABOLIC HEALTH WITH DR. SANDRA SOBEL

At this point, we have reviewed many of the essential pieces of knowledge that make it clear that your metabolic health matters. Now, I'd like to share with you how, as a physician and metabolic-health expert within endocrinology, I approach working with you to optimize your metabolic health.

First and foremost, collaboration with a medical care expert is essential. This ensures that the medical recommendations you receive are not only highly effective and pull from the latest medical knowledge, but also safe and take into consideration their role among your other health conditions or medicines. The Hippocratic Oath that all doctors take prior to embarking on this marvelous calling of medicine is to, "first, do no harm". Our genuine concern to ensure that what we offer for our patients does not compromise health is ever-present in the medical



Collaboration with a medical care expert is essential to achieving your best health outcomes.



recommendations we give. Board certification is a marker that your doctor has put forth a significant amount of time in learning and understanding the various disease processes, their complications, and their multifaceted management. It also demonstrates that your physician has mastered the medical knowledge and proven to be an expert in the field(s) in which they are board-certified.

I pride myself on having triple board certifications in:

- Endocrinology, Diabetes, and Metabolism
- Lifestyle Medicine
- Obesity Medicine

In addition to these board certifications, I have a Nutrition Science certificate from Stanford University and a certification in Plant-Based Nutrition from Cornell University's affiliated T. Collin Campbell Center for Nutrition Studies. These certifications and additional specialty trainings have given me an expert level of understanding about how our metabolic health is affected by hormones, nutrition, exercise, and stress. As a physician and metabolic-health expert within endocrinology, I am also uniquely aware of what medicines work best for specific metabolic health conditions and how those medicines interact with all the other variables of your health.

I was inspired to pursue these advanced certifications because I wanted to simultaneously provide a comprehensive whole-person approach to metabolic health that is evidence-based and respects the complexity of the individual and their health. All too often, more traditional approaches include the limited means of treating metabolic health through a sole focus on pushing medicines that are ultimately costly, have unfavorable side effects, and because they don't address the whole person, prove to be less effective than a comprehensive approach. This is not to say that I do not use medicines. I certainly do. In fact, as an endocrinologist, other physicians refer people to me because of my expertise in medicines used to treat metabolic health. I recognize, though, that medicines cannot do it alone.

I have built the approach I take at Summon Health precisely so I can focus on you as a whole person. By engaging the six spokes of my whole-person approach to metabolic health treatment from the initial consultation on, people learn that they can powerfully influence their health, rather than feel as though



A whole person approach empowers you to take charge of all aspects of your health.



True and sustainable change begins with an accessible, whole-person approach.

to

they've surrendered control of their compromised health. By working with a board-certified endocrinologist with expertise

in metabolic health, you have the confidence that the lifestyle and medicine recommendations have been thoroughly studied and tested and do not involve outlandish, expensive, and unsustainable health practices.

My journey in furthering my expertise and pursuing board certification in Lifestyle and Obesity Medicine confirmed what I had been observing in my clinical academic practice for years. In order for true and sustainable change to take root, there has to be an accessible, whole-person approach to medical delivery, where nutrition, physical activity, stress management, and medications are all addressed in each person. Traditional models of healthcare delivery result in fractionated care, where people have to see one person for one part of their health, another person for another part of their care, and people can often feel pulled apart and confused when recommendations are conflicting. The extensive wait times to see all these different providers feels defeating and the extra time and money spent on fractionated care adds up.

Our Approach

At Summon Health, I work with individuals looking for an expert physician who they can trust to treat them as a whole person, where the time spent is consistent with the complexity of what they want to accomplish, and where personalized recommendations ensure success and champion each individual's health. Access to this level of detailed and personalized expert-level care no longer requires exhaustive and discouraging wait-times. This comprehensive, whole-person approach to your metabolic health is not some lofty aspirational goal at Summon Health - it's the standard.



CHAPTER 5.

THE SUMMON METHOD:

SIX SPOKES OF WHOLE-PERSON TREATMENT FOR METABOLIC HEALTH





NUTRITION: FOOD AS MEDICINE

For individuals with type 2 diabetes and/or pre-obesity/obesity, there are a variety of effective, healthy nutrition approaches that lead to weight loss and can decrease insulin resistance. In fact, there are so many options that it tends to feel overwhelming to navigate. We need to sort through it though, since nutrition has such a profound impact on our metabolic health. If it were as simple as picking the one nutrition approach that reigned supreme, then that nutritional approach would naturally be the one that obesity and diabetes medicine fields would unanimously promote.

Nutrition Quality is Key

Ultimately, if we can find our way through these overwhelming options and filter out the ineffective and even harmful fads, the medical studies show that it is less about the breakdown of the macronutrients and more about the nutrition quality and one's ability to stick with the healthy nutritional approach that leads to successful weight reduction and improvement in insulin sensitivity^{10,11}.

One common misconception that is important to dispel, is that carbohydrates have to be nearly eradicated from the nutrition plan to lose weight or to improve insulin sensitivity. This is simply not true. Nutrient QUALITY, regardless of the nutrition plan you choose, is going to be of utmost importance. Not all carbohydrates are created equal. Whole food sources of carbohydrates, such as vegetables, fruits, whole grains (brown rice, farro), and legumes are absolutely foods that can (and should!) be consumed as part of a healthy eating plan that focuses on maximizing nutrition while supporting weight loss and insulin-sensitizing efforts.

A plant-forward approach ensures a fiber-rich diet that increases the thermogenic effect of food and increases total energy expenditure. Let me underscore that point. What we are trying to promote is inefficiency with food absorption. Yes - inefficiency. You see, the fiber that comes from plant food sources makes the gut work harder. This increased effort increases your energy output, which promotes healthy weight loss. Also, the fiber from plant sources provides important pre-biotic components to the healthy bacteria in the gut. By promoting and building up healthy gut bacteria, we enhance our microbiome, which leads to improved nutrient absorption and can assist in glucose stabilization and weight-loss promotion^{12,13}.



A fiber-rich, plant forward diet is a key part of improving metabolic health.



I am transparent with my patients about my bias toward adopting a plant-based approach to nutrition. This does not mean that the individuals have to go strict vegan on this plan. Everyone, no matter what their nutrition preferences are, can use more plant-based nutrition in their eating habits, as the fiber, minerals, vitamins, and antioxidants that are abundant in plant-based foods result in improved gut microbiome, improved insulin sensitivity, steadier glucose levels, improved bowel regulation, and weight loss. Importantly, this plant-forward approach can be adopted in any evidence-based nutrition plan you prefer: whether it is whole food plant-based, Mediterranean, or yes, even keto.

So what foods should be avoided?

Ultra-processed, highly refined foods and sugar-sweetened beverages. These caloric sources have infiltrated our grocery shelves, convenience store check-out aisles, and even our pantries. These foods have been stripped of essential nutrients and fibers during the manufacturing process and replaced with fillers, chemicals, and excess salts and sugars to engineer the foods to an unnatural hyper-palatable state. And boy does it work. It satisfies the consumer immediately and triggers areas of the brain to enhance cravings and food addiction.

This contributes to the development of behaviors that promote obesity and diabetes. In addition, the additives in ultra-processed foods cause disruptions in hormonal food regulation signaling (insulin, leptin, and ghrelin, to name a few) which further contributes to obesity and diabetes development.

At Summon Health, a detailed nutrition history is an essential component of the initial consult and is readdressed in subsequent visits. This includes past successes and failures with nutrition, nutrition sensitivities, and nutrition preferences. I use health technology, when indicated, in concert with this detailed history to collaborate with you to develop a nutrition approach that will improve your metabolic health and lead to sustainable lifestyle change.



What to Look For:

- Whole, nutrient dense foods
- Eat a colorful diet
- Aim for a wide variety of vegetables, fruits, and whole grains
- Choose less-processed convenience foods

What to Avoid:

- Highly processed foods
- Refined grains and added sugars
- Low quality fats



TEACHING KITCHEN: CULINARY MEDICINE IN ACTION¹⁴

Personalized nutrition counseling aims to provide each individual with knowledge and direction to adopt eating patterns to achieve their health goals – whether it is to improve blood sugar control, to lose weight, or both. This nutrition blueprint is undeniably helpful.

However, it may still be overwhelming for some individuals who don't yet have the confidence to take this nutrition blueprint and use it to go grocery shopping or independently prepare foods. This results in a struggle to apply the nutrition plan and the nutrition spoke to your health stalls. Imagine if you could collaborate with your physician, one-on-one, to go food shopping or for food preparation instruction related to your nutrition plan. A teaching kitchen is a space where a person works with and under the supervision of a trained professional in the preparation of foods.

The benefits of having access to a teaching kitchen include:

1. Learning proper food handling techniques.
2. Exploring preparation of foods that you may have never otherwise been prone to purchase.
3. Gaining confidence in the ability to prepare healthy and flavorful meals.
4. Leaving the mess outside of your house!
5. Learning the nutritive benefits of the food and the purpose they serve in your health.
6. Learning how to buy healthy food at the grocery store.
7. Getting a real-time demonstration of what it means when the doctor says, “eat healthier.”

Our Approach

At Summon Health, I am committed to delivering health in a way that is collaborative and informative, as opposed to the all too often vague nutrition recommendations that leave you burdened to figure it out for yourself. When making the transition from academic medicine to a more personalized and involved health practice model, I felt very strongly about making sure that my space included a teaching kitchen. In this space, I purposefully provide food preparation instruction and provide a space for both inexperienced and well-versed kitchen pioneers to explore different food approaches.



PHYSICAL ACTIVITY

Physical activity is a foundational spoke in the Summon Method. Physical activity contributes to increased energy expenditure, while also preserving and potentially increasing skeletal muscle mass. With weight loss, it is important to preserve skeletal muscle mass as much as possible. Weight loss should come primarily from fat mass and being able to accurately measure body composition over time is an important tool in tracking progression. Additionally, for those with insulin resistance and diabetes, exercise is an excellent way to assist in keeping blood sugars in check¹⁵. Because glucose is the fuel that muscles need for energy, activating muscles through exercise becomes an effective way of removing glucose from your bloodstream without needing to overly depend on the insulin system.

Similar to the nutritional approach above, building on inefficiency is key.

Inefficiency with physical activity challenges the body to expend more energy during exercise. If the same exercises are repeated day in and day out, the body adapts by conserving energy, ultimately slowing progress. Working with someone who can help you keep variation in your routine is important.

By consistently changing the type, duration, and intensity of exercise, the body is unable to adapt. Keeping your body 'on its toes' recruits different combinations of muscles, which ultimately leads to more effective progress in your efforts³.

For those living with pre-obesity, obesity, or diabetes, a first important step is to consider your current level of physical activity. You may already be an avid runner or cyclist. In that case, I would evaluate the other facets of your metabolic health and then present a personalized modification to your current routine. Other individuals may be early in the process of starting to become more physically active. In that case, we would work together to develop a personalized approach geared towards exploring options.

For those looking to build a more physically active lifestyle, it is important to be mindful of any physical limitations you may have. For example, if you suffer from osteoarthritis of the knees, we would explore exercise options with less risk



Developing the optimum approach to staying active is an important part of metabolic health.



of causing arthritic pain, such as swimming or cycling. As other spokes of this comprehensive approach begin to yield results, such as weight loss, you may notice that the osteoarthritis in your joints improves. We can then begin to consider activities like adding more load-bearing exercises to the joints without worsening any pre-existing pains.

The following are recommendations for physical activity:

Adults, at least 150 minutes of moderate physical activity per week or 75 minutes of vigorous activity per week are recommended¹⁶. The intensity of the workout can be determined by using a calculation guided by maximum heart rate (MHR). To calculate MHR, you subtract your age from 220. So, for an individual who is 39 years old, $MHR = 220 - 39 = 181$. A moderate-intensity workout is when your heart rate is between 55 and 70% of your maximum heart rate. Stretching and balance exercises are part of the process as well, which ensures proper muscular repair.

STRESS MANAGEMENT

When was the last time you spoke with your medical care team in-depth about how your stress was affecting your health? Did you know that stress has a significant hormonal impact? An important part of metabolic health is focusing on healthy stress management. Our stress hormones include cortisol and catecholamines, both of which are secreted from the adrenal glands¹⁷. These hormones lead to increased glucose production from the liver, leading to higher circulating glucose levels in the bloodstream. These stress effects elevate resting blood sugar, which in turn places more demand on the insulin system, ultimately leading to insulin resistance.



How can we break this vicious cycle? At Summon Health, I work with you to customize your stress-reduction technique, including guided meditations during some of our sessions. I also provide patients a meditation room at the clinic for use prior to or after an appointment. Building habits that aid in stress reduction also optimizes metabolic health.

Chronically elevated stress negatively impacts sleeps and leads to disruptive health behaviors such as food cravings and even disordered eating, both of which can contribute to obesity and diabetes. It is important to try to be mindful of your stress and its impact on your metabolic health. Exploring interventions that address stress in healthy ways will help minimize the hormonal disruptions and behaviors that contribute to obesity and diabetes. Healthy stress reduction interventions shown to be effective in stress management include adopting meditative practices, mindfulness training, seeking social support and connections, and exercising^{3,17}.

MEDICATIONS

One of the marvels of science and medicine is the development of medicines to help in the treatment of disease. I am a fervent believer in the positive health impact the above lifestyle changes can have in addressing pre-obesity, obesity, pre-diabetes, and diabetes. I also believe in the importance of medications and their benefits in improving health when necessary. As an obesity and diabetes expert, I am able to personalize prescriptions for each patient to maximize the benefit of the medicine and reduce the potential for complications and undesirable side effects.

Anti-Obesity Medications

Anti-obesity medications are indicated when the BMI is $\geq 30\text{kg/m}^2$ or when the BMI is between $25\text{-}29\text{kg/m}^2$ and the person also has an obesity-related complication such as hypertension, high cholesterol, or diabetes, to name a few. The following list of medications serves as a brief review of the current FDA-approved anti-obesity medications. It is important that you discuss with your medical provider whether any of the following medications are an appropriate option for you.

Medication	Modality of Use	Mechanism of Action
Phentermine	Daily pill	Appetite Suppressant
Phentermine + Topiramate	Daily pill	Appetite Suppressant
Liraglutide	Daily Injection	Appetite Suppressant/t
Semaglutide	Weekly Injection	Appetite Suppressant
Bupropion + Naltrexone	Daily pills	Reduces food cravings
Orlistat	Daily pills	Decreased Fat Absorption
Gelesis	Daily pills	Increases Satiety

**Diabetes Medications⁹:**

Drug Class and Generic Drug Names	Mechanism of Action	Cardiovascular Benefit	Common Side Effects
Biguanide --Metformin	<ul style="list-style-type: none"> Reduces liver sugar production Improves insulin sensitivity 	+/-	<ul style="list-style-type: none"> Upset stomach Loose stools
Glucagon-like peptide-1 receptor agonist (GLP-1RA) --Liraglutide --Dulaglutide --Exenatide --Semaglutide	<ul style="list-style-type: none"> Reduces the transit of food through the GI tract Increases satiety Food-stimulated insulin release 	+	<ul style="list-style-type: none"> Nausea Reflux Loose stools Weight loss
Sodium-glucose transporter 2 receptor inhibitor (SGLT2i) --Canagliflozin --Empagliflozin --Dapagliflozin --Ertugliflozin	<ul style="list-style-type: none"> Blocks the reuptake of glucose from the urine by the kidney and glucose is therefore excreted in the urine 	+	<ul style="list-style-type: none"> Increased urination Decreased blood pressure Some weight loss
Dipeptidyl Peptidase-IV inhibitor (DPP-IVi) --Sitagliptin --Linagliptin	Decreases the activity of the DPP-IV enzyme, which allows native GLP-1 hormone to stay around for longer	-	<ul style="list-style-type: none"> Upper respiratory infections Runny nose

Other drug classes include sulfonylureas (examples include glipizide and glimepiride) and a similar drug class meglitinides (examples include repaglinide), amylin analogue (examples include pramlintide), and thiazolidinediones (examples include pioglitazone). These drug classes are still used in the management of diabetes and depending on an individual's glucose levels and other medical conditions, or even affordability of medications, may influence the use of these other drug classes.



Insulin Medications⁹

Insulin recently celebrated 100 years since its discovery in 1921. Insulin is absolutely necessary for the treatment of type 1 diabetes and has been increasingly instrumental for use in several people with type 2 diabetes. I will not detail each insulin that is on the market but will highlight the two main types of insulin used.

Basal insulin: This refers to long-acting insulin that is injected once, sometimes twice, a day. This insulin helps control the amount of sugar that is released from the liver into the circulation. Its purpose is not to address the blood sugar spikes that occur when eating.

Bolus insulin: This is a quick-acting and shorter-lasting insulin that is injected prior to eating. Because food can raise blood sugar, bolus insulin is needed to address these sudden blood sugar increases from food.

At Summon Health, I work with each patient to customize the use of medications with a main aim to use medicines safely and effectively. The goal is not to just manage metabolic health disease - I work with you to reduce the burden of having to take many medications and even aim to put obesity and type 2 diabetes into remission.

TECHNOLOGIES⁹

Metabolic health technologies include blood glucose meters, continuous glucose meters, smart insulin pens, insulin pumps, and other wearables.

One of the features that sets Summon Health apart from traditional medical practices is that given my diabetes expertise as an endocrinologist, I can proactively use these health technologies in pre-diabetes and diabetes to better understand your glucose responses to nutrition, physical activity, medications, and stress reduction. By following continuous glucose trends, this provides actionable information that helps with behavior modification, medicine dose adjustment, and improved metabolic health.



Blood Glucose Meters⁹

These are glucose meters that require a drop of capillary blood on a strip which then generates a blood sugar reading. Depending on the medication regimen a person is on, the frequency of blood sugar checks can vary.

Standard blood glucose monitors are slowly being replaced by the availability of continuous glucose meters, though, as continuous glucose monitors provide dynamic glucose information while finger-prick meters provide only static information. Blood glucose meters have several components (the meter, strips, lancing device, and lancets). The readings provide a single snapshot glimpse of blood glucose at the point in time the reading is done and give no indication as to where the blood sugar reading was prior to the test, or the direction in which the glucose trend is headed.



Continuous Glucose Meter (CGM)⁹

Continuous glucose meters use a painless, small filament embedded within subcutaneous tissue (the thin layer of fat right under the skin). The filament is attached to a sensor and transmitter and continuously samples the interstitial fluid.

This sampling provides continuous monitoring of glucose levels. This means that the meter can give information about trends in blood glucose levels over time, how your blood glucose responds to nutritional choices, or even how it fluctuates with exercise, sleep, and stress. These meters are also capable of alerting people to rapidly rising or falling glucose levels, creating an added level of safety for those that need it.



Smart Insulin Pens⁹

Smart insulin pens are a newer technology. These pens are Bluetooth-enabled insulin delivery devices in which rapid-acting insulin cartridges hold 300 units of insulin per cartridge. The pen contains technology capable of timestamping when a dose of insulin was taken, records the amount of insulin taken, and can also provide an estimate as to how much insulin is still circulating in the system since the previous bolus of insulin.



Insulin Pumps (AKA Continuous Subcutaneous Insulin Infusion, CSII)⁹

Insulin pumps are another insulin delivery technology. Although these pumps are advanced technology, they are not artificial pancreases, as the technology needed to fully automate insulin delivery does not yet exist for everyday use. Insulin pumps still require the person to input several pieces of information for the pump algorithm to make appropriate calculations, such as basal rates, insulin to carb ratio, insulin sensitivity, and target glucose level. These values can be adjusted depending on time of day.

Based on the make of the pump, some pumps are clipped to or stored in pieces of clothing and a thin tube delivers insulin from the pump to the infusion site where insulin is delivered into the subcutaneous tissue. Other insulin pumps can be worn on the skin, eliminating the need for a tube between the main console that stores insulin and the infusion site. Individuals who wear pumps need to change their pump site frequently and remain mindful of refilling the pump cartridge with insulin.

The latest advance in diabetes technology combines CGM and insulin pump technology. These are called 'hybrid closed-loop systems' in which the glucose readings from the CGM are communicated to the algorithm within the pump. With this data, the insulin pump is able to adjust the insulin delivery up or down, or even suspend the pump temporarily if it senses impending low blood sugar. The reason this device is referred to as a 'hybrid' is because the person using this technology still needs to indicate to the pump when they are about to eat and what the carb count is for the food(s) they intend to eat. This allows the algorithm to provide the calculation for the appropriate dose of insulin needed for that food.

THE SUMMON METHOD: BRINGING IT ALL TOGETHER

As you can see, there are numerous health aspects, or as I refer to them, 'spokes', that impact metabolic health. Each spoke needs time and attention to ensure that the health changes you summon are not only reached but endure. In the traditional medical model, there are considerable obstacles that make it challenging for each of these spokes to get the time and attention they deserve. Your care often gets delegated to several different medical providers with significant scheduling wait times. When attending an appointment, there are constraints to the time available to discuss and review your health needs with your doctor. Frequently, the many providers involved face challenges in communicating with one another about your health. The result: delayed, fractionated, high-cost care where health stalls and you are left feeling overwhelmed and discouraged.



My expertise in the fields of Endocrinology, nutrition, Lifestyle Medicine, and Obesity Medicine uniquely position me to address each of these six spokes—comprehensively—at the time of your visit. The direct care health model removes the barriers and constraints imposed by health insurance related to who you can see, what you can see them for, or how often you can see them. Direct care allows for immediate access to comprehensive, expert, and consolidated care that results in cost- and time-savings in the long-run.

At Summon Health, the initial 90-minute consultation allows for the necessary deep dive into each person’s nutrition, physical activity, stress and coping strategies, and medical history. Your care is no longer placed on hold – you are seen within 3 business days, always. You can feel assured that each of your health spokes is being uniquely evaluated and personalized and that the Summon Method recommendations incorporate the latest medical knowledge and come from an expert in the field. All of this collaboration occurs in concert with a physician to whom you have direct access.



At Summon Health,
you’re never left waiting
for the care you need.
We see all patients
within 3 business days.

What to Expect

At the end of your initial consultation, you will receive a detailed body composition interpretation, recommendations for further lab tests to clarify the state of your metabolic health, and expert interpretations of these results. Collectively, this information is used to formulate a clear path for you to achieve your health goals. Equipped with this information, you can then decide at what level of engagement you would like to continue working together. For some who feel they can take on the recommendations more independently, we can schedule visits when needed. For others who will benefit from regular comprehensive involvement, I offer membership levels of engagement. Either way, your metabolic health plan is comprehensive, personalized, clear, and timely—all consistent with prioritizing your health. The wheels are set in motion as you begin to move forward and summon your health.



CHAPTER 6.

CONCLUSION

Metabolic health matters! My hope is that this e-book has helped to highlight just how important it is to prioritize your metabolic health. Like I said earlier, I believe that the overwhelming majority of us would start to make changes in our metabolic health today to avoid becoming a part of the concerning statistics of those with compromised metabolic health. If individuals had the opportunity and time to work with experts in the field to understand just how much power each person has in improving and summoning the health they desire, these ominous health statistics would improve and people would be able to add quality, disease-free years to their lives.

Knowing the early signposts along the road of compromised metabolic health and what your options are for treatment serve as an essential foundation from which you can now make informed choices regarding how to optimize your metabolic health. Metabolic health conditions such as insulin resistance, pre-obesity, obesity, pre-diabetes, and diabetes need not be experienced as diagnoses that you are stuck with forever, fated to an acceptance of more and more medications, medication interactions, medication side effects, and even worsening symptoms. Instead, when we optimize your metabolism and comprehensively address your metabolic health, these conditions are treatable, and for some, may even be reversible.



As a physician board certified in Endocrinology, Lifestyle Medicine, and Obesity Medicine with expertise in metabolic health, I have seen firsthand what is possible when people suffering from compromised metabolic health conditions engage a whole-person approach to their healthcare. Real change is possible when you collaborate with a physician-expert trained in a comprehensive approach to metabolic health, who can spend the kind of time with you that these conditions require for successful outcomes, and who can harness the most advanced evidence-based practices to address these conditions. At Summon Health, my goal is not merely to help manage metabolic health conditions, my goal is to summon your health, activate your metabolism and reverse disease.

To learn more about my six-spoke whole-person approach to your metabolic health that I use at Summon Health, please visit my website: www.summonhealth.com

If you're ready to take the next step in your metabolic health journey, you can schedule a 15-minute complimentary call with me to review the specifics of your circumstances. When you feel ready to take your journey even further, you can schedule an in-depth consultation with me. Both can be scheduled through my website or by calling 412-278-7960.

[Schedule a Call](#)

Wishing you success along your path to summoning and optimizing your metabolic health!

– Sandra I. Sobel, M.D.



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