The F.L.O.W. Method

for Heart Attack Prevention



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Please seek advice from your healthcare provider for your personal health concerns prior to taking healthcare advice from this book.

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1. The Cause of Heart Attacks

Stop what you are doing for a moment and count to 30.

That's about how long it will take for the next heart attack to happen in this country. This approximate rate will continue non-stop, every hour around the clock, 24/7, for 365 days a year, and about every fifth one will result in death. That's a lot of people.

What is particularly unfortunate, however, is the fact that most of these can be prevented. In other words, almost 800,000 heart attacks occur in a year, and, aside from fairly rare instances, most should never even happen.

Now pause again and think about this number: \$20,000,000,000. That is the approximate worth of the cholesterol-lowering drug industry this year, and that many zeros equals a lot of pills. You might then wonder why, if high cholesterol causes plaque in arteries and that causes heart attacks, there would be that many heart attacks every year if so many people are apparently taking those drugs?



The short answer is this: cholesterol-lowering drugs do not sufficiently treat the primary cause of heart attacks. While I am not saying they are worthless, it's still true that, unless we use an approach that fully addresses the cause or causes of a disease, we should expect the disease to continue showing up regardless of how fancy and technologically advanced our band-aids get.

Now think about this issue from a different perspective.

If high cholesterol, in and of itself, was the primary cause of cardiovascular disease, there should be no variable circumstances. If this were truly the case though, then I wouldn't be able to ask the following two legitimate questions:

- 1. Why do some people with high cholesterol not get heart attacks?
- 2. Why do some people with low cholesterol get heart attacks?



If you look at the answers to these questions in more detail, you will see they help call into question the very foundation of the conventional, medication-based treatment approach currently in use, and begin to point towards the need for an additional explanation as to what is going on. More importantly, exploring these questions helps point towards a more thorough, and effective solution to this most pressing of medical problems.

Exploring Question 1:

It is definitively shown that some, though not many, people have high cholesterol and don't get a heart attack their whole lives. Simple logic would suggest then that high cholesterol, in and of itself, cannot be the direct, singular cause of plaque forming in a blood vessel, or it would always happen in these people no matter what.



Exploring Question 2:

Some studies have shown that people with cholesterol levels which fall into a range of what is considered normal, and even some people whose levels are in the range of what is considered optimal, still get plaque in their arteries and even heart attacks. To be clear, this is not common, but it does happen.

Simple logic applied here would suggest then that low cholesterol, in and of itself, is not definitively protective agains all cases of either plaque forming in arteries or heart attacks occurring from that.

Now let's be perfectly clear- I am not suggesting that cholesterol has no role in plaque formation or heart attacks at all. Cholesterol is, of course, a primary ingredient of plaque.



Denying that fact would be like denying wood has anything to do with camp fires. Because of this, it would also be silly then to argue that cholesterol has nothing to do with plaque formation. Plaque can't form without it. However, just like wood doesn't light itself on fire, cholesterol (and the molecules that carry it like LDL) don't just cause plaque to form, simply by floating around in the blood stream. Certainly the more of it that's around, the higher the potential, but it's just not a guarantee.

The bottom line is this:

If cholesterol and the molecules that shuttle it around your body are a primary component of plaque, but their mere presence is not sufficient to cause the plaque to form, then the conditions in and around those arteries must also have at least something to do with it as well.

When looked at this way, we can begin to try and answer both of the above questions....



- 1. For various reasons, the walls of some people's arteries must be less vulnerable to plaque forming in them than others, even when cholesterol is high.
- 2. For various reasons, the walls of some people's arteries must be more vulnerable to plaque forming in them than others, even when cholesterol is relatively low.

The cause of heart attacks must then be considered multi-factorial, with perhaps an equally important aspect influencing resistance to them being the conditions in and around the arteries, and not just the level of cholesterol carrying particles in the system.

Therefore, if we are to be as thorough as possible in our efforts to prevent heart attacks, we should not stop at trying to lower cholesterol carrying molecules like LDL, using drugs or even supplements. While keeping them as low as possible makes good sense and is usually helpful, a good argument can also be made that additional focus should also be on the conditions which allow for them to become a problem.



One of my teachers along the way, Dr. Mark Houston of the Hypertension Institute in Nashville, Tennessee, always stresses the ideas of "infinite insults" when discussing the contributors to the process of cardiovascular disease, and when aiming to describe a more thorough, comprehensive way of preventing and treating it.

"Infinite insults" is a term Dr. Houston uses to describe in general the many different things that can harm the structure and/or function of your endothelium, or the inside lining of your blood vessels. Your endothelium plays a crucial role in the potential, or lack thereof, for plaque to form in your arteries. A healthy, resilient, and robustly functioning endothelium can indeed make it much more difficult for this process to develop, whereas endothelial DYSfunction can serve as a breeding ground for it.

Certainly, excessive levels of atherogenic cholesterol carrying molecules, like the infamous LDL or 'bad cholesterol', can simultaneously serve as building blocks to plaque formation and can contribute to the infinite insults to the endothelium.



However, elevated levels of the following can also powerfully 'insult' your endothelium, and further set the stage for problems to arise:

- Oxidative stress
- Inflammation
- High blood sugar
- High homocysteine
- High iron
- High insulin
- More obscure factors such as Lp(a), TMAO, neu5GC, endotoxins, heavy metals, various types of bacteria, viruses, and other microorganisms
- Many more (hence the term "infinite")

Therefore, a truly thorough approach in the prevention and treatment of cardiovascular disease should always include assessment for the presence of as many of these factors as possible. More on this later...



Of course, once identified, every effort should also be made to try and reduce exposure to these insults. However, due in large part to it being impossible to identify and avoid them all, if one is to be as successful as possible in preventing, halting, or reversing plaque development, an additional concept which must be considered is "susceptibility", as it pertains to the vascular endothelium itself.

In other words, if we are evaluating for the potential of damage to occur to a structure the most thorough evaluation would not only include assessment of factors which can harm the structure (in this case the endothelium), but also the structure itself, and how susceptible, or vulnerable to damage it is.

In this case then, what would increase the endothelium's susceptibility to damage?

One of, if not the most impactful contributor to this is



nutrition. In other words, superior nutritional status (from a variety of angles) which assesses and accounts for both predisposing genetic factors, as well as specific nutrients crucial to optimal production and function of blood vessel linings, may provide the most bang for your susceptibility buck and exponentially reduce risk much further than just taking a prescription.

These nutrients will come up again later, and include:

- Amino acids- Arginine, Lysine, and Proline
- Macrominerals- Potassium, Calcium, and Magnesium
- Vitamins- A, B Complex, E, and especially C
- Trace Minerals- Copper, Zinc, and Manganese
- Phytonutrients- Nitrates, Flavonoids and other Antioxidants

For various reasons, nutritional therapy should always endeavor to obtain important nutrients through food whenever possible. In terms of those noted above, it is not surprising that the primary sources of all them can be found in what is popularly termed a 'whole food, plant-



based diet', an approach to eating found to have a particularly high potential for efficacy in preventing and combating cardiovascular disease. It is also of interest to note that a high intake of processed foods, and many types of animal-based foods can directly, or indirectly provide a steady supply of all noted *insulting* factors above.

There have been other approaches to eating that are not expressly "plants only", but shown to be at least partially effective, relative to a whole food plant based diet, such as the Mediterranean diet. However, they typically utilize high amounts of plant foods, low to moderate amounts of animals foods, and very little processed foods. Whether or not they are as effective as a well-planned, thoroughly implemented whole food plant based diet is still up for debate, but some studies suggest "(whole food) plants only" may be the best bet of all.

Hopefully by now it is becoming clear that if the version of "prevention" employed in order to avoid the development of arterial plaque, and potentially the most



common cause of death in the world, starts and finishes with an aspirin and a statin and/or other cholesterol lowering drug, a tremendous opportunity to further reduce risk is being completely missed.

Why? Well, that should be obvious by now. Drugs, by their very nature, do not and cannot satisfy unmet needs the body may have. They also may not offset the negative effects of many of the noted insulting factors above, and they may not adequately reduce susceptibility to this disease to the degree possible when nutrition is also, or alternatively employed. Instead, they're designed to make up for the negative effects of these crucial factors; to simply put a band-aid on a poorly healing, dirty wound that needs cleaning, in a body that needs better nutrition.

Looking at the statistics, it is obvious. This disease is running rampant. Only a thorough approach, which may or may not need to include such drugs, will serve to provide truly adequate protection from its grasp.



Part 2- The F.L.O.W. Method for Heart Attack Prevention

Food

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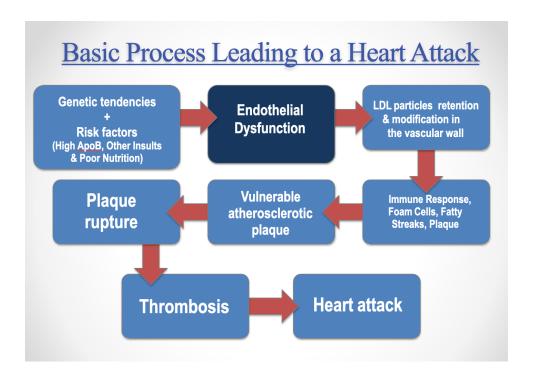
The acronym F.L.O.W. stands for the four key components of my approach to helping people prevent heart attacks. They are Food, Lifestyle, Optimized nutrition, and Watching for change. Fittingly, the first of the four components is also, far and away the most important and most impactful. As you will see, there is even good evidence to suggest that, at least in some cases, it may be all that is truly necessary.

Why is food so valuable and fundamental to preventing heart attacks?

Essentially, making the right food choices will have a positive, potentially life-saving effect at every stage of



this process, all the way up to the stage just prior to the actual heart attack.



The Endothelium is the Key

As you learned earlier, a significant factor in the development of plaque in arteries is the health and function, or lack thereof, of the inside lining of the artery walls (endothelium). This lining becomes more and more of a breeding ground for this process, the less and less healthy it is. When it becomes unhealthy, the chances of



cholesterol carrying molecules like LDL getting into and then getting stuck there rapidly increases. If they do get stuck (retained) this can insight a cascade of events as your body responds to this situation as best it can. If the process continues, the end result will be a rupture in the fibrous cap overlying that plaque and a subsequent clot (thrombus) forming in response to this. If the thrombus grows large enough, it will block blood flow and create a cardiovascular event. It's also true that the more LDL there is the more likely some will get stuck. Not only that, but LDL getting stuck also causes the inflammatory response that incites plaque formation.

What Causes the Endothelium to Become Unhealthy?

The simplest way to think about the process of the endothelium becoming unhealthy (dysfunctional) is to think in terms of what I like to call "The Triple H ratio":

HELP/HARM= HEALTH

The Triple H ratio simple reflects the impact you can have on the health of your endothelium depending on how much help you give it vs how much it is being harmed.

In other words, the less help you provide your endothelium and the more harm it experiences, the more likely it is to become dysfunctional. An unhealthy/dysfunctional endothelium simultaneously gets more permeable, allowing easier passage of LDL and other atherogenic (plaque contributing) molecules, and more sticky, making it easier for these molecules to get stuck than to move along. This is throwing more logs on the fire.

So why is food such an important aspect of heart attack prevention? There is simply nothing more potent or more modifiable than food choices in terms of the effects to be had on the Triple H ratio.

Foods that Help the Endothelium

- Vegetables, especially dark leafy greens and those naturally high in nitrates.
- Fruits, especially berries, and other foods high in polyphenols.
- Whole grains and beans and other foods that support a healthy microbiome.
- Foods that lower LDL.



• Foods high in potassium.

Foods that Harm the Endothelium

- An overall eating pattern high in processed junk and animal foods, and low in fruits and vegetables.
- Foods that induce high levels of LDL.
- Foods high in salt.
- Foods high in saturated fat.
- Foods/beverages high in sugar.
- Excessive consumption of added oils, including olive oil, and especially in the absence of beneficial foods at the same meal.
- Foods high in trans fats.
- Food patterns that induce high amounts
 of endotoxins especially high intake of saturated fat.
- High fat diets in general.

Overall dietary pattern for a healthy endothelium:

- Low in fat, especially processed, trans, and saturated fats.
- High in fruits and vegetables.
- High in fiber and resistant starch.
- Low in animal foods, focused mostly on low mercury fish if any.
- Low in processed foods/High in whole foods.



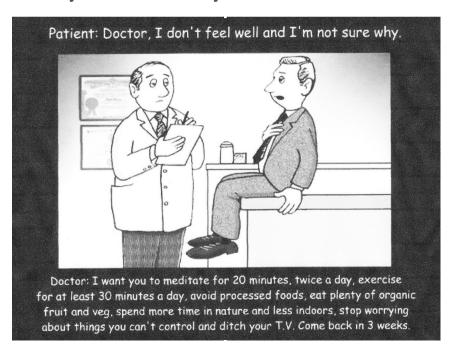
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Continuing with our emphasis on improving the health of the endothelium, we can look beyond food to other aspects of our daily life and find even more ways to improve upon our Triple H Ratio. How you live your daily life presents a huge opportunity to help your body (and endothelium) be as healthy as possible, and to further reduce your exposure to harm. There are countless ways to do both, but two of the most crucial involve how you pattern your days, and how you move.





Ways to Help or Harm

Circadian rhythms are physical, mental, and behavioral changes that follow a 24-hour cycle. These natural processes respond primarily to light/dark, movement, and food intake, and affect most living things, including animals, plants, and microbes. In the realm of cardiovascular health, research from Dr. Sachin Panda has shown that disruptions in circadian rhythms can:

- Worsen fat and cholesterol metabolism
- Increase LDL production
- Increase inflammation
- Disrupt the kidney's ability to maintain balance of magnesium, potassium and sodium levels
- Increase risk for diabetes

If you recall from the food section, all of the above can directly harm endothelial function, thus worsening our Triple H ratio and again impacting the potential for the key factor in the process of plaque formation- LDL entry and retention in the vascular walls.



How to Support Your Circadian Rhythms

Time restricted eating (TRE) is one of the most potent ways to impact circadian rhythms in the body. TRE modifies the time of day you take in calories so that you are taking in food during the times when your body metabolizes it most efficiently, and stopping calorie consumption early enough to be able to digest well and give your GI tract time to rest.

Research has shown that approximately 50% of people consume calories during a window of 15 or more hours per day. Doing so can lead to the following impacts on metabolism and thus cardiovascular disease risk:

- Remain perpetually in energy (fat) storage mode (most fat burning begins 6-8 hrs after last meal, high gear at 12 hrs+)
- Glucose stays high in blood for more total time each day
- Less time to get into rest, repair, and detoxification mode
- Poor quality sleep
- Higher activity of the rate limiting enzyme for cholesterol production in the liver (HMG Co-A Reductase)



Exercise is not only directly good for your blood vessels and heart, but it is also good for your circadian clock. The key though is to do it at the right time of day:

- Muscles, bones, and cartilage have own circadian rhythms
 - Muscles- More efficient, powerful, and ready for exercise midday to afternoon
 - Bones/Cartilage- Repair and regenerate in the late afternoon and evening
- Late night exercise increases cortisol and delays melatonin secretion.
- Raising heart rate and temperature later in day also inappropriately signals circadian clocks its early in the day than it actually is, creating more imbalance.

Proper light exposure has significant impacts on your circadian rhythms, general and cardiovascular health. For example, exposure to daylight helps you:

- Sleep better at night by helping to optimize melatonin secretion
- Synchronize all of your body's circadian clocks
- Reduces daytime sleepiness



Improves mood

Crucially, however, your light exposure must be natural as much as possible. Exposure to the blue light emitted by most light bulbs, computer, and phone screens at night can cause a delay in sleep onset, and lead to worsening sleep quality overall

Amazingly, your skin contains significant stores of nitrogen oxides, which can be converted to nitric oxide, the most important substance for healthy endothelial function, by UV radiation and exported into systemic circulation. Studies show that this pathway can improved endothelial function and reduced blood pressure!

Sleep amount and quality can also have potent impacts on your circadian rhythms, especially via related impacts on the hypothalamus. Your hypothalamus is your body's master clock- command center for hunger, satiety, sleep, fluid balance, stress response and more. It also receives information about light from the outside world which is vital for turning on all of your brain's functions, and sharing information with the rest of your body.



It has been observed that poor sleep correlates with increased cardiovascular disease risk. Unsurprisingly, sleep deprivation induces endothelial dysfunction. Perhaps one of the most disrupted contributors to poor quality sleep of all is sleep apnea. I recommend people get an aura ring to track sleep quality and if it is not optimal, to be assessed for sleep apnea, and to follow some of the suggestions above as well.

Movement vs Sitting

It is well known that exercise is good for your heart and blood vessels, while a sedentary life is not. Not only does a low ratio of exercise to being sedentary increase potential for fat deposition, which in and of itself can increase risk for cardiovascular disease, exercise directly helps endothelial function, while sitting harms it. One great thing about exercise is that any type of exercise, as long as it isn't excessive, is helpful to your endothelium, so you can choose the form that best suits you, and you are certain to be helping.

The other key is to not spend too much time sitting during the day without getting up and moving around. Again sitting, in and of itself, is harmful to endothelial function. So, exercise is good but don't just sit around when not working out.



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Optimized Nutrition

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The classic tenet of the approach to disease that should underly all therapeutic interventions in medicine is simple in words, but profound in meaning.

Epidemics will tend to persist as long as the genuine cause of a disease is not understood.

However, in spite of the ubiquitous use of statins, aspirin, high blood pressure medications, and surgical techniques, cardiovascular disease remains our number one killer; an epidemic of almost incalculable proportions. The question is, Why?



Thinking for a bit about the meaning of the statement above should help you quickly reach a likely answer:

The conventional approach to cardiovascular disease does not adequately address the underlying cause of the problem.

Now, if we revisit an earlier chapter in this book, and review the profoundly positive effects the correct vs incorrect food choices can have on the health of a person's vascular system, then superimpose that on this tenet of traditional medicine, we must come to one simple conclusion: Food choices present an opportunity to treat the cause of cardiovascular disease.

Indeed, although your doctor may never have mentioned it, research has been done that is helping to prove nutrition plays a distinct role in the true causal factors underlying cardiovascular disease. To a significant extent, the impact of proper and improper choices for vascular health involve the the impact of those choices on the



amount of apo B containing molecules, especially LDL, in the bloodstream. We are further reminded of this if we remember the role of the endothelium in the potential for and progression of cardiovascular disease, and what is helpful vs harmful. So what is it about helpful foods that make them so helpful? Could there be certain nutrients in those foods that are particularly important? Would adding additional amounts of these nutrients in certain cases create an even more potent impact?

Important Nutrients for Healthy Blood Vessels

The following nutrients, all present in high amounts in a variety of whole plant foods are key to helping with various aspects of healthy, strong, resilient blood vessels. Optimizing vascular health potential means regular consumption of foods that contain them. In more severe cases, adding additional amounts of these nutrients in supplement form may provide even more benefit than the foods that contain them alone, and provide further factors that are truly addressing the cause of the problem. The Optimized Nutrition approach in the F.L.O.W. Method then is to use food and nutritional factors that are most specific to the issues at hand.



Endothelial Function/Nitric Oxide Production:

- Vitamin C
- Flavonoids
- Nitrates
- Folate
- Vitamin B6
- Vitamin E

Collagen Production

- Vitamin CLysine
- Copper
- Zinc
- Manganese
- Vitamin A

Vascular Smooth Muscle Function

- Magnesium
- Calcium
- Potassium
- Arginine



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Watch for Change

- High cholesterol
- A family history of heart attack or stroke
- History of smoking
- High blood pressure
- Overweight
- Diabetes

These are some of the typical things that might be assessed by a primary care physician or cardiologist in an effort to calculate your risk for a future heart attack or stroke. Seems like a pretty thorough list right? With one person having a heart attack **every 30 seconds** in this country, it better be.



Unfortunately, however, while it appears to be a thorough list, it is not enough to get a truly accurate assessment. In fact, recent research has shown the standard risk calculators that incorporate this type of information, and which are employed by most doctors, are insufficient for helping to accurately determine your true level of risk.

A recent analysis of some of the most commonly used calculators revealed a hodgepodge of results showing them to sometimes overestimate and sometimes underestimate risk, but rarely do they hit the nail on the head. Long story short, relying on a CVD risk calculator as the sole means of assessing your future potential for a heart attack or stroke, and/or to help you decide on starting to take a medication or to pursue other efforts to reduce risk, will leave you with little more than an educated guess. Unfortunately, however, this is still the standard of care in conventional medicine.



A Better Way

My training in, and use of advanced risk assessment for heart attacks and strokes for the last 10 years has shown me that, if one is willing to dig a little, there is much more that can be done to identify your true cardiovascular health status than what is typically happening out there.

Perhaps the most important thing of all that we can do is simply to look.

Coronary artery calcium scoring (CACS), along with carotid intima-media thickness (CIMT) ultrasounds are two tests I use frequently with my patients. CACS is available with a doctor's order at most imaging centers, and is a non-invasive, relatively safe, and very inexpensive way (most centers charge around \$100-200) to get a look at your coronary (heart) arteries. It uses a CT scan to look for evidence of calcium deposits in the walls of your arteries, which only occurs if there is plaque in that region. Research shows it can add significant value to any standard effort at risk assessment. The downside is that the younger a person is, the less likely it is for their body to have calcified any of the plaque potentially present in



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their arteries, and so it will miss non-calcified lesions in a subset of the adult population. My age cutoff for recommending this test is about 50 years old for the average biological male, and 55 years old for the average biological female. It is also not a useful test for following disease progression or regression as I work with a patient, unlike CIMT (more below).

CIMT ultrasound is another inexpensive, non-invasive, safe, and useful test that can be employed in an effort to obtain a much more accurate assessment of risk for future heart attacks and strokes. Recent research also shows it can be very useful to help predict risk for future cognitive impairment. In my practice, I also find it incredibly helpful for obtaining true, objective evidence regarding how my patients are responding to the treatments I recommend, year in and year out. It is one thing to see cholesterol levels go down, but entirely another to see actual visible evidence of arteries getting healthier.

The downside of CIMT has typically involved a combination of lack of availability and less reliable results in the face of inexperienced or poorly trained ultrasound technicians. For this reason, our clinic uses laboratories



who represent the gold standard in the industry, on a monthly basis, and we now serve as a hub for this type of testing for other doctors in the region to send their patients.

Considering the fact that cardiovascular disease is so common it can even be found in fetal arteries and that it affects nearly half of all Americans, it is my humble opinion that everyone should have at least one thorough evaluation for cardiovascular disease risk, and these imaging studies are a crucial part of that.

Lab Testing- The Other Half of the Dynamic Assessment Duo

Getting an even more thorough risk assessment, beyond what the CACS and CIMT can help provide, must involve more lab testing than is typically done in a conventional doctor's office. It is my humble opinion that, on average, doctors only tend to test for things they have drugs and surgical techniques available to treat. In the realm of cardiovascular disease risk assessment, this means



cholesterol panels, and blood sugar.

To be clear, these are both useful areas to get an assessment of, as both contribute powerfully to risk or benefit, depending on what levels they are at. However, stopping there leaves a gaping hole in potential for having more valuable, useful information that provides not only details in the realm of risk for future plaque developing, but also, if plaque has already been found to be present, how likely it is for that plaque to rupture and cause a heart attack or stroke.

These are some of the most common lab tests I use to try and get a better assessment of where my patients are at, how they got there, and where they may be headed in terms of cardiovascular health:

• **Apolipoprotein B**- Apo B is our best test to get an understanding of how many cholesterol carrying molecules, which may get stuck in artery walls and begin or continue the process of plaque formation, may be floating around. It is a much better risk predictor than LDL-C or total cholesterol.



- Lipoprotein (a): Lp(a) is a molecule that is similar to an LDL but that has additional properties that make it particularly prone to helping develop plaque. It is genetically determined in the sense that some people make it in high amounts while others never will.
- Fasting Insulin: Poor insulin sensitivity and subsequent elevations in both insulin and glucose in the blood can have a significant negative impact on risk for cardiovascular disease. Early in this process, insulin levels may often start to rise to the higher end of the normal range before elevations in blood sugar and HbA1c start to go up.

• Inflammatory Markers:

- Useful for helping further stratify the general risk level of someone with high cholesterol markers, and the risk for plaque rupture if some is present.
- hs-CRP
- ∘ Lp-PLA2
- MPO

• Oxidative Stress Markers:

 Oxidative stress is a crucial contributor to harm of the endothelium. If present it can significantly increase risk



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for the likelihood of cholesterol carrying molecules to penetrate and get stuck in the vascular wall. It can also reduce production of nitric oxide, which is crucial for optimal health and function of the endothelium and reduced risk for plaque formation.

- OxPL-apoB
- F2 Isoprostanes

There are many additional tests that can be run to get an even better idea of someone's current vascular health status, as well as some key genetic markers that can be helpful in determining the propensity someone has toward developing cardiovascular disease, but these tests are more typically chosen on an individual basis depending on a person's circumstances. Nonetheless, a combination of the above lab markers and imaging studies provide an exponentially improved assessment of overall risk, and provide tools to help a clinician follow treatment progress over time. Using these tests as a means of Watching for Change is perhaps the most important part of my treatment programs because it allows me to determine whether what a person is doing is working or not.



Part - Conclusion

No matter what state of health you currently find yourself in, you were born with the inherent right for optimal health, and the innate drive towards achieving it, whether you realize it or not. Your body is always seeking health and looking for the best opportunity to thrive. Unfortunately, the tools necessary to do so to your greatest capacity are not typically taught and/or provided in a conventional clinical setting.

This myriad of tools are indeed available, however, to both the engaged practitioner and motivated person if they are willing to make the effort. Properly utilized, they can serve as a means for all but guaranteeing a significant reduction in, if not elimination of, risk for a future heart attack or stroke. The F.L.O.W, Method for Heart Attack Prevention is my best effort towards clarifying the optimal combination of these tools in order to make them understandable and accessible to the average clinician and person alike.

If you'd like to learn a LOT more detail about this approach, please consider scheduling an appointment to talk to me at Bioloungepdx.com (Portland, Oregon clinic) or Vitalhuman.com (long distance telehealth consults).



Author Bio



Daniel Chong, ND, is a licensed naturopathic physician who has been practicing in Portland, OR, since 2000, where he earned his naturopathic doctorate at the National University of Natural Medicine. Daniel's focus is on risk assessment, prevention, and drug-free treatment strategies for cardiovascular disease and diabetes. In addition to his degree in naturopathic medicine, Daniel has completed certificate training in cardiometabolic medicine at The Academy of Anti-Aging Medicine, a BaleDoneen Method Preceptorship, and served for 4 years as a clinical consultant for Boston Heart Diagnostics. He currently maintains an in person clinical practice at BioloungePDX.com, and provides long distance, telehealth-based wellness consultations via Vital-Human.com .

