Chapter 6

Can I reduce my heart scan score?

*If we can accurately measure coronary plaque, we should aim to reduce it.*

Like a weed in your garden, coronary plaque can grow rapidly. With growth unchecked, plaque scores increase, on average, at a rate of 30–35% per year (Janowitz 1991; Maher 1999; Budoff 2000; Raggi 2005). A starting score of 100 will become 130, 169, 220, 286, 371, . . . kaboom!!!

Heart attack doesn’t necessarily occur once a specific value heart scan value is exceeded, but the *likelihood* of heart attack escalates along with the score. It’s like building a house of cards: the more cards you stack, the shakier the structure, until you add that final card and it all collapses. *Growing* plaque is *unstable* plaque.

If you know your heart scan score, your future is at a crossroads. One path leads to life with a score that doesn’t increase (or decreases) versus another path with your score increasing the expected 30-35% per year. How different is your future between the two paths? Even in the ensuing two years, an increasing score means your heart attack risk skyrockets 20-fold. It means you’re getting closer and closer to that day when catastrophe strikes. In contrast, a stable or decreasing score means high likelihood of remaining free of heart attack and major heart procedures. There is tremendous benefit to stopping your score.
Can you reduce your score? Most people can, given the proper tools, adherence to the program, and sufficient time.

**What does it mean to reduce your score?**

When a heart scan score is held stable or is reduced, this is evidence that, not only is plaque no longer growing, it is being *inactivated*. (Plaque activity cannot be directly measured in a live human, so we need to rely on indirect methods.) You have reabsorbed fatty tissue in the plaque, shrunk plaque size, turned off inflammatory processes and enzymes, and extracted some of the calcium. When plaque is inactivated, it is far less likely to rupture and cause heart attack.

You and I can live happily with plaque. We just don’t want plaque that is growing and potentially rupture-prone. A stable or reduced heart scan score can be viewed as indirect evidence of plaque inactivation. Inactive plaque is far less likely to rupture, to cause heart attack and other catastrophes.

**How do I know if my score has increased or decreased?**

How do you know what plaque is doing—shrinking or growing? Simple: get another scan.

Many people ask: Doesn’t having a “perfect” cholesterol value with treatment guarantee a reduction in score? Unfortunately, it does not. How about a perfect lifestyle—strict adherence to diet, vigorous exercise, adequate sleep, etc? This won’t guarantee that plaque shrinks, either. Cholesterol values, even lipoproteins (discussed in chapter 7) are only *starting points* to identify potential tools to shrink your plaque. The only way to measure results in a specific individual is to re-measure the quantity of plaque present: get another scan. Reducing cholesterol, eating healthy, etc. are indeed helpful and enhance the likelihood of stopping your score, but no specific measure guarantees it.

In fact, there is *nothing* that truly tells you what your score is doing except . . . another score. Tracking your plaque is therefore a
two-scan experience. There is no way to accurately and reliably predict what your score has done without looking at the score again.

The **Track Your Plaque 5 Stages of Reversal**

I break the course of tracking plaque down into five distinct phases, what I call “The **Track Your Plaque 5 Stages of Reversal**”:

**Stage 1 Deceleration:** Slowing plaque growth to ≤30% per year

It’s an unambitious goal, but a modest effort can slow growth to below the “natural” rate of 30% annual growth. This is the rate of growth experienced by many people who take statin cholesterol drugs (Lipitor®, Zocor®, etc.) as a sole strategy for combating heart disease.

Slowing growth to less than 30% per year is regarded as an unsatisfactory result in the **Track Your Plaque** program, one that can be improved substantially. While this represents an improvement over natural or accelerated plaque growth, substantial risk for heart attack persists with this level of growth.

**Stage 2 Deceleration:** Slowing plaque growth to ≤20% per year

A modest reduction in heart attack risk occurs when growth of plaque is slowed to 20% or less per year, but remains above 10%. Stage 2, like Stage 1, is also a typical result for someone who does nothing but adds a statin cholesterol drug and follows a conventional (e.g., American Heart Association low-fat) nutritional program.

While existing data suggests that achieving Stage 2 Deceleration modestly reduces the risk of heart attack and the likelihood of heart procedures, there’s plenty of room for improvement.

**Stage 3 Deceleration:** Slowing plaque growth to ≤10% per year

Now we’re starting to have a real impact. When plaque grows at 10% or less per year, it hasn’t stopped, but has slowed considerably from its “natural” rate of growth. Plaque growth rates of 10% or less per year are associated with a substantial reduction in heart attack. Achieving this rate of growth should prompt the question, “What could I do just a little bit better?”
Stage 4 Zero Growth: Zero percent plaque growth per year

This means that plaque growth has halted. Even though plaque has not reversed, zero percent plaque growth is associated with a dramatic reduction in the risk of a heart attack (Raggi 2005). This is probably due to the fact that, while calcium has not changed, the active elements in plaque, like inflammatory cells and fatty material, have been reabsorbed, resulting in reduced potential for plaque rupture. In my experience and in published experience, the likelihood of a heart attack is virtually zero at this stage.

Stage 5 Reversal: Reducing your heart scan score

This is the "holy grail," the goal we seek. It’s the prize that has tantalized the hopeful who’ve been misled into dead ends like low-fat diets, chelation, and other blind alleys. When achieved in the Track Your Plaque program, it is truly an enormous personal success that I would equate with graduating college, getting married, or being cured of cancer.

Reducing your heart scan score signifies that coronary atherosclerotic plaque has reversed—it is smaller in volume. All the components of plaque have diminished, including inflammatory cells, fatty tissue, and calcium. It also means that plaque has been essentially inactivated, its potential for rupture virtually shut down. It also means that your risk for heart attack is zero. In other words, in all practicality, heart disease risk has been eliminated. It also means that, although plaque is still present, the fatty portion of plaque has been replaced by solid structural tissues that allow plaque to exist quietly without inflammation and without activity that triggers rupture. A decreasing heart scan score provides powerful indirect evidence that plaque is becoming stable and inactive.

In my experience, the majority of people who adhere to Track Your Plaque can slow or completely stop the otherwise inevitable increase in score, though the time required to do so may vary. In the first year, if all the proper steps are taken, a very realistic goal is to achieve an increase in score of no more than 10% (Stage 3 Deceleration). The existing data suggest that a score increase of
<10% represents low-risk, and heart attack becomes less and less likely as your plaque is inactivated.

A zero-percent increase or decrease in score is more commonly encountered after two years on this program. Obtaining a reduction of score with present treatments is therefore a one to two-year long process for most participants.

It is important to point out that the lower your starting score, the more easily it is reduced. Scores of 200 or less have a much greater chance of being lowered in the first year than scores >200. In our program, 70% of people with starting scores of <200 succeed in the first year. This drops to 30% success in the first year if your score is >200, 50% by end of year 2. The message here is clear: the earlier you start to Track Your Plaque, the more control you will have over your heart’s future. Nonetheless, if you start with a higher score, don’t give up hope. You may have to work harder and be patient, since this process requires at least two years for most people to enjoy substantial score-reducing or slowing effects.

Certain groups of people can anticipate greater difficulty in controlling their score. People with established diabetes will encounter more of a struggle. Unfortunately, if you’ve already been diagnosed with diabetes, reducing your score is less likely. The Track Your Plaque principles still do represent the most powerful prevention program you can follow, but it is more likely that you simply “decelerate” your plaque growth with these efforts, rather than achieve score reduction as long as you remain diabetic. (However, we will discuss how diabetics can supercharge their plaque control effort using our unique Track Your Plaque nutrition principles that reduce the diabetic tendency, many times reverse it!)

People with the metabolic syndrome who have a combination of low HDL, high triglycerides, high blood pressure, blood sugar levels >110 mg/dl, and are overweight, will also struggle to control plaque. The metabolic syndrome generally precedes the onset of full-blown diabetes but has a similar, though lesser, impact on plaque. The most powerful tool for control of plaque growth for many people like this is weight-loss achieved through the strategies discussed later in our Track Your Plaque Nutritional Principles. It is possible to control
plaque with uncorrected metabolic syndrome in the picture, but it can be considerably more difficult.

Once score stabilization (zero change) or reduction is achieved, the need for any future scans to detect additional change is really an individual decision. Since the score has started to drop, the most important goal has been achieved. It is worth considering another scan, however, if there is some significant change in your program. For instance, significant weight gain, reversal of diabetes, or a prolonged period of treatment interruption are among reasons for repeating a scan despite initial control of the score.

The Track Your Plaque Study
In 2008, along with nutrition scientist, Dr. Susie Rockway, and statistician, Dr. Mary Kwasny, both of Rush University Medical Center, we published a portion of the Track Your Plaque experience (Davis 2008).

In this group of 45 participants, within 18 months 20 participants achieved a reduction in heart scan score of 14.5% (mean), while 22 participants experienced zero change in score. Of the 45 participants, only 3 experienced an increase in score. One participant, a 52-year old woman, achieved an incredible 64% reduction in heart scan score, our best outcome to date.

In other words, 42 of 45 participants, or 93%, for all practical purposes eliminated risk for heart disease by halting or reducing their heart scan scores.

Why such a small number of participants? Actually, prior to publication of this study, we had enrolled several hundred people in the program. But once vitamin D was added to the Track Your Plaque program, we began to witness faster and larger reductions in heart scan scores in a greater proportion of participants. So this small study included only the modest number of participants who had been taking vitamin D for the duration of the study, but did not report the several hundred people who had participated “pre-vitamin D.” (There’s much more on the crucial role of vitamin D in plaque control later in the book.)
Since publication of the study, we have improved the *Track Your Plaque* program even further by adding new strategies that have potential to achieve even greater reductions in heart scan score in more people. More on that to come.

**What if my score doesn’t stop going up?**

What if your score fails to stabilize and continues to increase, even after two years of effort? Does this mean heart attack is inevitable? Should you just throw up your hands and schedule your hospitalization?

No, absolutely not. But it is worth taking this increase very seriously. In the absence of symptoms, you and your doctor may need to repeat lipoprotein analysis (discussed in chapter 8) to be certain you are achieving the desired endpoints. If you are not at the recommended endpoints (also in chapter 8), changes in your program will be necessary to achieve or maybe even exceed endpoints. You should also re-examine your lifestyle changes of diet and exercise (detailed in the next several chapters). A lax approach to diet and exercise are common reasons for imperfect control of plaque.

If you’ve started with conventional lipid analysis rather than lipoproteins, you and your doctor should consider obtaining the more comprehensive and powerful lipoprotein analysis to identify hidden deficiencies in your program. Usually, your score will fall in line with some additional tweaking of your program.

Later on in the book, we will also run through a *Track Your Plaque* checklist to be sure that all major plaque-causing issues have been addressed.

Let’s go on to Step 2 of *Track Your Plaque*, in which we focus on identifying the causes of coronary plaque.

**Summary**

Coronary plaque grows at the alarming rate of 30–35% per year.
Being able to measure plaque precisely through coronary calcium scoring provides a means of tracking and controlling the growth of plaque. Tracking the heart scan score provides powerful feedback on your ability to halt or even shrink plaque. This opens a whole new age of potential coronary plaque regression.