

HEART DISEASE – MY STORY OF HOPE AND PERSEVERANCE

In early June of 2023, my wife Colleen and I went on a tour of the US National Parks in Utah. Our favorite has always been Bryce Canyon. Bryce Canyon is known for its distinctive hoodoos, spires, and towers that appear as forests of rock.



Bryce Canyon is on the Colorado Plateau, an ancient geographic region that was frequently flooded by freshwater and marine landscapes. Massive amounts of fine-grained sediment which were deposited over millions of years, eventually transformed into sedimentary rock which, in turn, was later uplifted by tectonic activity to elevations close to 9,000 feet. However, over time, the rock was subjected to the slow, powerful forces of weathering and erosion that molded the elevated landscape into the layered columns that are evident in the photograph.

While Bryce looks like a canyon, in fact, it is not a canyon at all because it was not carved by a river like the Zion Canyon or the famous Grand Canyon further south. Bryce was created by the insidious erosion of elevated softer sedimentary rocks over a very long time.

There are a variety of trails at Bryce. One is the Navajo Trail. We had our heart set on doing Navajo, even knowing that I would be returning home to a heart imaging test that is used to show how well blood flows through my heart muscle and how well it is pumping. One month before our Bryce Canyon hike, a fitness stress test scheduled as part of a research study I joined, flagged some 'warning signs.'

Here's a bit of important history about my relationship with cardiovascular disease.

In September 2012, I experienced chest pain while digging a trench at our cottage. This turned out to be a minor heart attack, but a heart attack, nonetheless. I ended up at Toronto's Sunnybrook Hospital. An angiogram identified what the surgeon referred to as 'three culprits' – three lesser coronary arteries, each of which were 90% blocked. I also had a 30% blockage in my left main artery. A 30% blockage is not typically treated with anything other than lifestyle change and possibly medication.

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Some heart disease science is important to review as part of understanding my story, my struggle with coronary artery disease.

There are several risk factors for coronary artery disease or arteriosclerosis. Before I go into that, it is important to recognize that we all have a degree of arteriosclerosis going on in our bodies. Coronary heart disease can start when a child is as young as two years old!

Atherosclerosis is a slow, lifelong progression of changes in the blood vessels that may start in childhood and gets worse much faster as you age.

The cause of atherosclerosis isn't completely unknown.

Many scientists believe plaque begins when an artery's inner lining - the endothelium - becomes damaged. Four possible causes are:

- Elevated levels of cholesterol and triglycerides in the blood
- High blood pressure
- Smoking
- Diabetes

Smoking plays a big role in the progression of atherosclerosis in the aorta - the body's main artery, coronary arteries, and arteries in the legs. Smoking makes fatty deposits more likely to form, and it accelerates the growth of plaque.

All these potential causes or risk factors are controllable or modifiable through diet, exercise, stress management, medication if necessary, and of course, quitting smoking. What cannot be changed are age, family history, or genetics.

As you age, it is increasingly likely that atherosclerosis will develop to medically worrisome levels. Of course, a family history of heart disease can predispose some people to it starting at an earlier age.

However, although there are people who live to a very ripe old age with no obvious signs of heart disease, others will die far too young from a disease that can be managed.

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For six months, I attended cardiac rehab classes at Toronto Rehab. I finished in May 2013. I learned a lot about heart disease and how to manage it. I enthusiastically threw myself into the task of staying heart healthy. I adopted an exhausting dedication to exercise and diet, quit smoking, lost weight, and a few friends along the way through my admittedly OCD approach to lifestyle change.

Here's another important term – VO₂ max. This means the maximum amount of oxygen your body can absorb and use during exercise. It measures your aerobic fitness level which is strongly correlated with overall health.

One year after graduating from rehab, I had an exercise stress test that produced a VO₂ max score at 165% of the predicted norm for my peer group.

I was fitter aerobically at 64 than I had been at 50! I was feeling good about my disease management.

I have stayed heavily connected to the cardiac rehab industry. For a decade now I have attended lectures of interest to me at Toronto Rehab, volunteered for four years at various rehab classes in the Central East Region, started a graduate program for Peterborough residents and I am an active member of the Next Steps graduate program provided by the Central East Regional Cardiovascular Rehab Program.

In February 2023, I attended an online lecture sponsored by Toronto Rehab. The guest speaker, Dr. Paul Oh, Cardiologist and Medical Director of Toronto Rehab, announced a new research initiative sponsored by Apple. The initiative is called the Heracles Study. The study attempts to link lifestyle choices with clinical outcomes over a long-time frame.

Heracles was perfect for me. I love to measure stuff and I see my life purpose as assisting others in the effective management of cardiovascular disease. Here was another way I could help and another way I could measure my overall health.

Participants are given an Apple watch and requested to wear it for at least eight hours a day. Each and every day. Part of the study is an annual fitness test like the one I had in 2014 which produced a VO₂ max score at 165% of the predicted norm for my peer group.

I was hoping that my total dedication to cardiovascular and aerobic fitness over almost a decade would produce similar results.

The technician stopped my test after seven minutes! Excessively high blood pressure and an irregular heart rhythm were the reasons. The attending cardiologist referred my results to my cardiologist, suggesting a follow-up.

I scheduled the follow-up for the week after we returned from our Bryce Canyon hiking holiday.

I did not know that when hiking at 8,400 feet, my left main artery was 95 % blocked. Like the rain that eroded the softer limestone to form Bryce's hoodoos, over the years I had laid down a build-up of plaque which left me at risk of a fatal heart attack. I also did not know that the stent procedures done in 2012, had completely blocked on the right side of my heart (the stenting on the left was still wide open).

How was I able to function, virtually free of symptoms climbing and hiking at close to 9,000 feet? I had no chest pain. All I noticed over the last couple of years was a gradual drop in my walking speed and a more than usual sleepiness in the late afternoon. In cardiac rehab, collateral blood flow is often talked about.

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The science goes like this. Collateral circulation is 'backup' blood vessels in your body that can take over when another artery or vein becomes blocked or damaged. Your collateral circulation provides alternative routes to maintain normal blood flow.

Collateral blood vessels connect to your main blood vessels and remain small and unused until you need them. Other collateral vessels develop throughout life in a process called angiogenesis - the formation of new blood vessels. Angiogenesis may happen as a main blood vessel slowly becomes blocked. Your body senses the reduced blood flow and calls other blood vessels into action. Regular aerobic exercise may also encourage new collateral blood vessels to form.

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Collateral blood flow encouraged by my overall aerobic fitness level sustained adequate blood supply to my heart muscle while life-threatening blockages were silently building in some of my arteries.

I do not believe it would have saved me if my left main artery had closed while hiking Navajo in Bryce Canyon. But it is the strongest testament I can think of, to staying fit - particularly if you are hoping to thrive with heart disease.

On July 20th I had double-bypass heart surgery at Sunnybrook.

It's now August 16, 2023. I'm halfway through the 'at-home recovery period' after bypass surgery. I've gone from going back to bed every couple of hours to my normal pattern of sleep. Ninety-five percent of the surgical tape residue is now off my leg and chest. I am eating like a horse, but maintaining the twelve-pound weight loss I experienced at Sunnybrook and the first week or so at home.

I feel stronger but not yet better than pre-surgery. My chest pain is easily managed with Tylenol, but I must admit, I'm often impatient for it to totally subside. I'm told it may never disappear one hundred percent.

My Apple watch, given to me as a participant in the Heracles Study, and subsequent testing allowed my difficulties to be identified and dealt with before disaster. I now have a third chance! My overall fitness level kept me alive on the Navajo trail and has helped me to recover from surgery fairly quickly. Now my Apple watch tells me my estimated VO₂ max has gone from below normal for my age at 25.6, to now above normal at 28.5 – an encouraging increase of 11% since the bypass surgery.

So, what have I learned?

It would've been so easy to throw in the towel, and say, "I did most things right and yet my disease progressed! So why bother trying to manage it?"

It would've been so easy to become depressed and demotivated. I do admit there have been days post-bypass surgery that I've felt like that.

Over those ten years since the Sunnybrook surgeon identified my 'three culprits,' I did most things right. I was all-in with adopting a healthy lifestyle! But what cannot be changed are age and family history or genetics.

As we age, it is increasingly likely that atherosclerosis will develop to problem levels and of course, a family history can predispose some of us to disease development at earlier ages. Two generations ago, I think my heart disease would have resulted in an early death. Even one generation ago, I might have had a poor outcome from a lack of knowledge as to how to best manage the disease.

My advice to you is quite simple. Do not throw in the towel!

Medicine knows so much more today.

There are interventions - some surgical, some pharmaceutical, and some lifestyle-oriented, that can help heart patients live longer and enjoy more productive lives.

This October, I will be seventy-three. I look forward to ten awesome years ahead. And perhaps another ten beyond that. Heck, I may live forever!

Please. Just stick to heart-healthy living but your emphasis should be on the living part. You must feel free to play, to occasionally let your hair down.

The famous Yoda quote from 'The Empire Strikes Back' comes to mind.

'Do. Or do not. There is no try.'

In other words, totally commit yourself to heart-healthy living, win or lose.

In my experience, if you do practice heart-healthy living eighty percent of the time, you will be fine. Do keep in touch with your body and how you feel. Do regularly visit with your care givers and have follow up testing to ensure you are on track. Don't beat yourself up for "unhealthy behaviour" but just make sure you only rarely behave that way.

Allow me a few final heart-felt words. I want to salute the awesome people at Sunnybrook Hospital. No names but the staff at all levels are world class and they made bearable my life's most frightening event.

I cannot thank them enough.

Mike