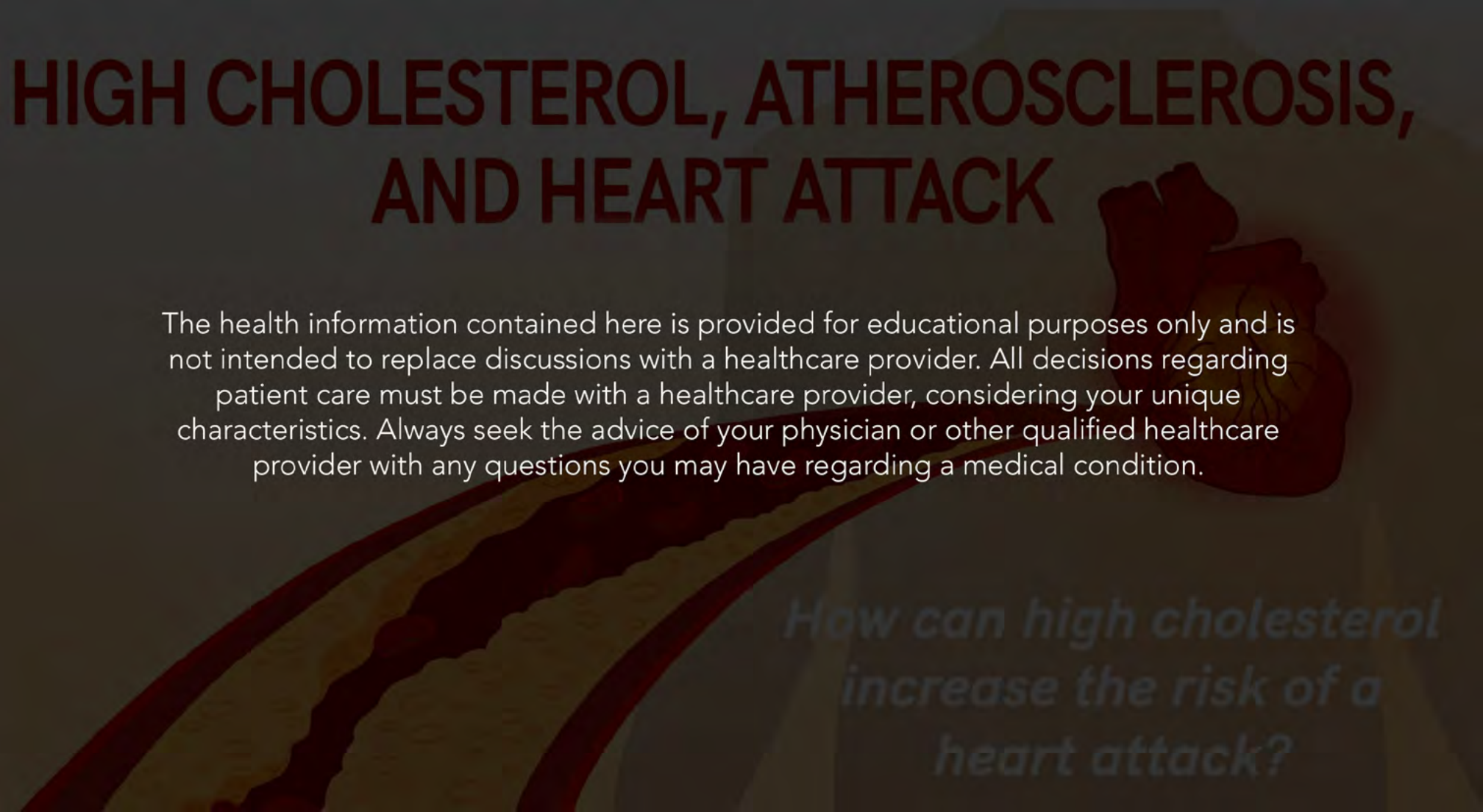


HIGH CHOLESTEROL, ATHEROSCLEROSIS, AND HEART ATTACK



The health information contained here is provided for educational purposes only and is not intended to replace discussions with a healthcare provider. All decisions regarding patient care must be made with a healthcare provider, considering your unique characteristics. Always seek the advice of your physician or other qualified healthcare provider with any questions you may have regarding a medical condition.

*How can high cholesterol
increase the risk of a
heart attack?*

HIGH CHOLESTEROL, ATHEROSCLEROSIS, AND HEART ATTACK

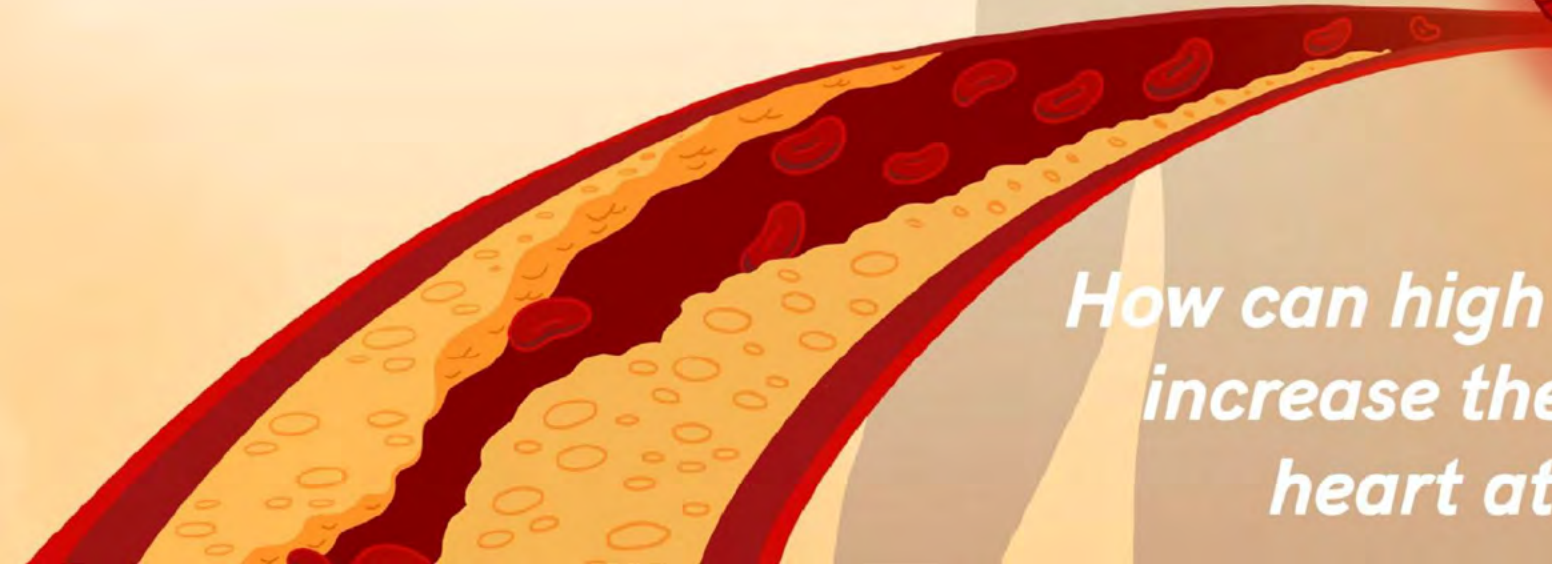
In this story we will mainly focus on the role of LDL-C in atherosclerosis (hardening of the arteries), and how it can contribute to plaque formation, which increases the risk of heart attacks. However please note that atherosclerosis can be caused by many factors, not just elevated levels of LDL-C or 'bad' cholesterol. Atherosclerosis is a slow, progressive condition that may begin as early as childhood. Its causes are complicated and not completely understood, but atherosclerosis is thought to start when the inner lining of the artery becomes damaged. The damage can be caused by a number of factors including but not limited to, high blood pressure, high cholesterol and triglycerides (a type of fat) in the blood, high levels of insulin in the blood from diabetes and chemicals from smoking tobacco. Atherosclerosis causes coronary artery disease, a form of heart disease, which can then lead to a heart attack.

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*How can high cholesterol
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Everything can change in a heartbeat... literally. On a whim, I decided to enter a 10k run.

One minute I'm jogging along... and the next, a pain ripped through my chest, back, and arms. I don't normally jog, but even I knew this was more than just a side stitch...this was serious!

ANNUAL HOSPITAL 10KM RUN





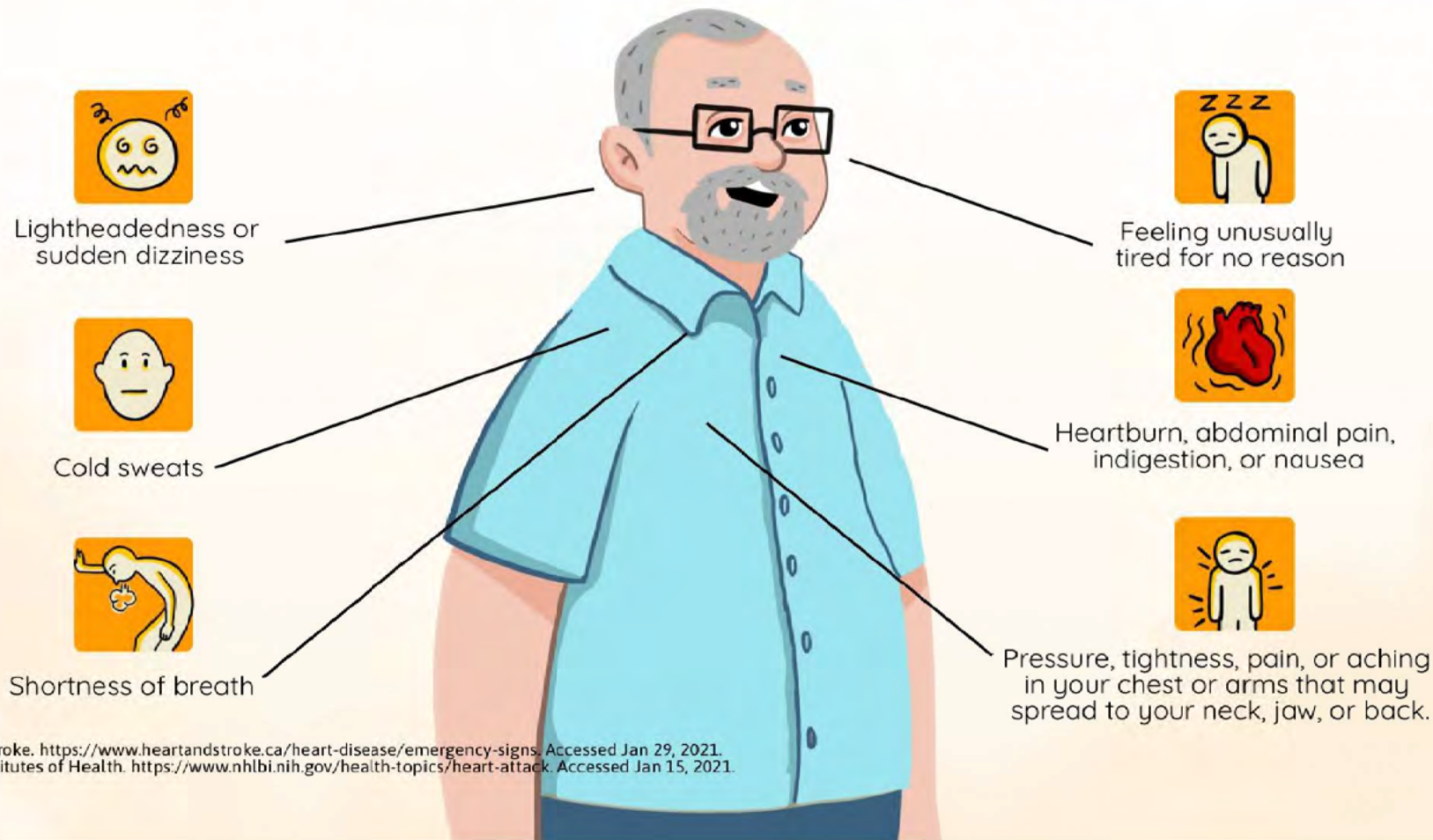
Someone, call an ambulance I think he's having a HEART ATTACK!

Hello? Yes, we're near the intersection of 12th and Franklin, please, hurry!

A **heart attack**? The second I heard my friend say those words, I denied it...but then another wave of pain hit me and I was sure he was right.

The ambulance sirens started going off in the distance and I hoped they'd get to me in time.

POSSIBLE SYMPTOMS OF A HEART ATTACK^{1,2}



1. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/emergency-signs>. Accessed Jan 29, 2021.

2. National Institutes of Health. <https://www.nhlbi.nih.gov/health-topics/heart-attack>. Accessed Jan 15, 2021.

10 years later...

The bad news... it was a heart attack.
The good news... I survived! That was
10 years ago, and I was told one of
the culprits was HIGH CHOLESTEROL.

I'd love to tell you I got my life
and health under control after
that... but I didn't, and I paid for it.

But I'm getting ahead of myself. Look,
my name's John, and I'd like to tell you
my story.





So after my heart attack, I met with a cardiologist who confirmed I had high cholesterol.

I thought I was healthy. My blood pressure was ok, I didn't have diabetes, but I didn't know about cholesterol...or how it could contribute to a heart attack.

John, you've got coronary artery disease and it looks like you've got really high cholesterol which increases your risk for a heart attack.¹

I've heard about high cholesterol but don't know much about it...

Plaque





Cholesterol

Cholesterol

Turns out cholesterol is a type of fat found in the blood that's naturally made in your body and also comes from your diet. There is a "good" type of cholesterol called HDL and a "bad" type of cholesterol called LDL-C. The ratio of HDL to LDL-C is a major determining factor of risk for heart attacks.¹



LDL-C ("bad" cholesterol)

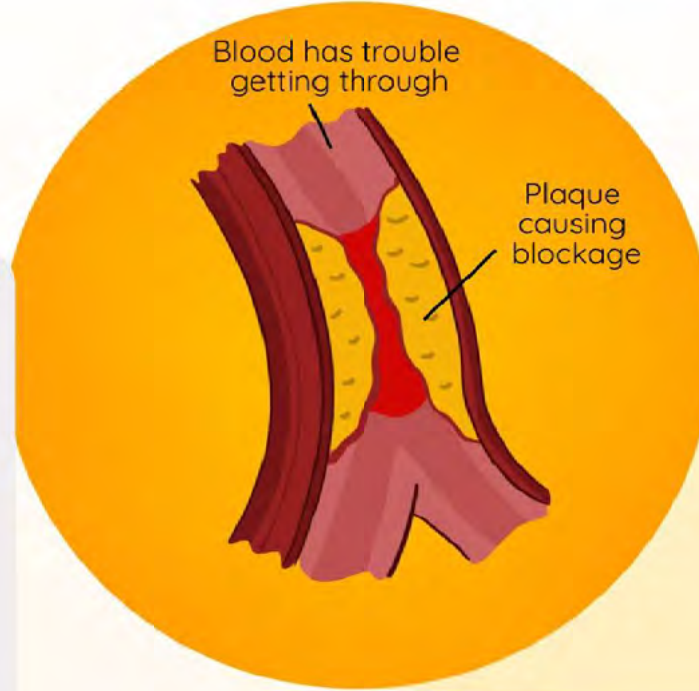




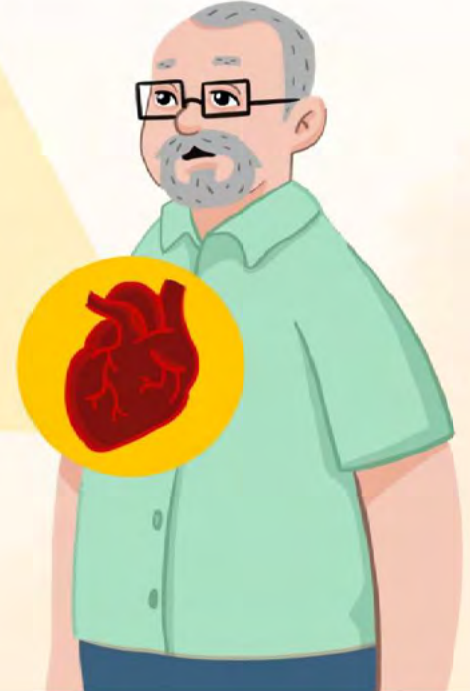
Atherosclerosis happens when arteries become clogged with fatty deposits (plaque). Plaque makes the walls of the arteries thick and hard. Over time, the artery narrows or gets blocked. When this happens in the major arteries to your heart, it can lead to **coronary artery disease**, a type of heart disease that can cause heart attacks.

Atherosclerosis is a condition that progresses slowly over the course of your life and can start as early as childhood. Doctors aren't quite sure what causes it, but it's thought to start when the inner lining of the artery becomes damaged.^{1,2}

Atherosclerosis



Disclaimer: Illustrative purposes only.

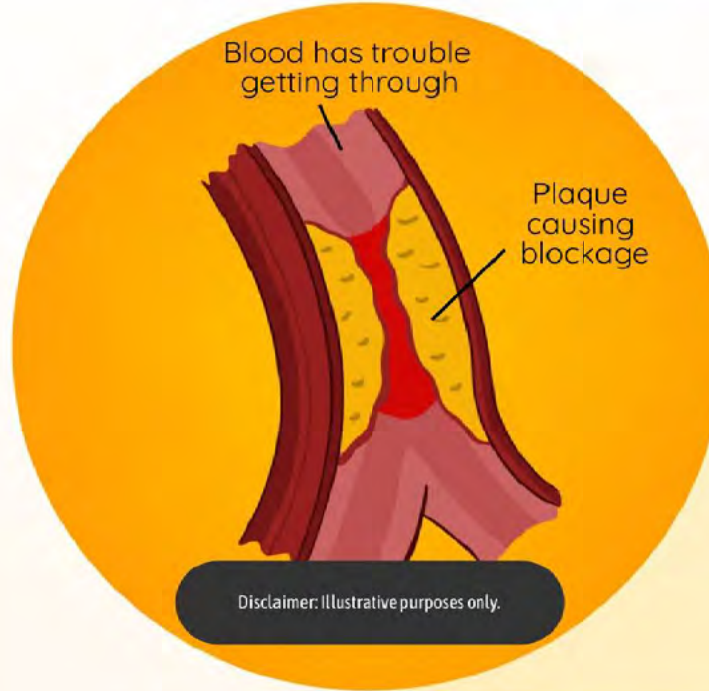




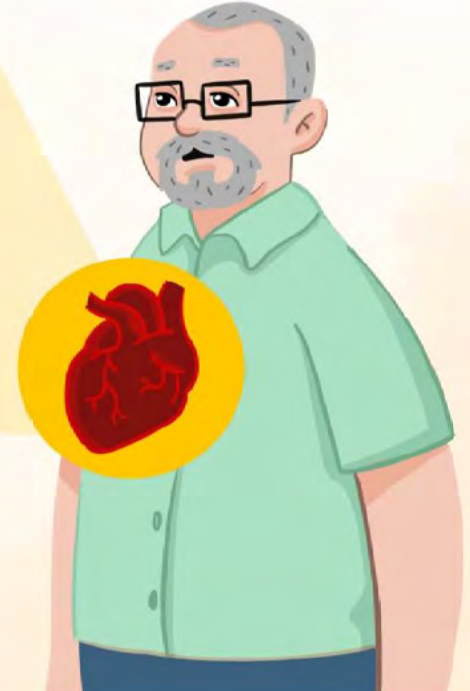
The damage to the inner lining of the artery can be caused by many things, such as high blood pressure, high cholesterol, high triglycerides (a type of fat) in the blood, chemicals from smoking tobacco, and more.

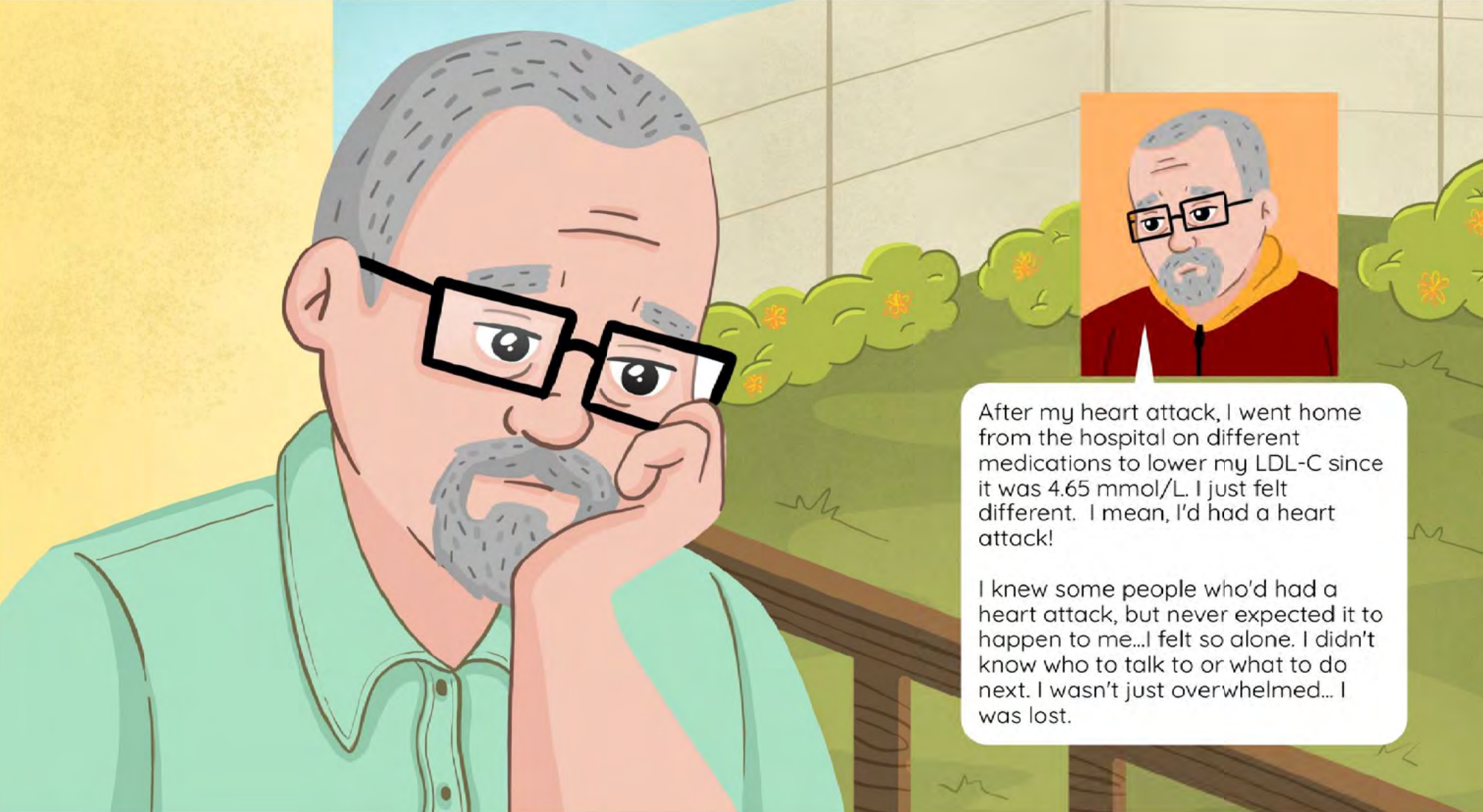
The blood vessel wall reacts to this injury by forming a plaque made up of fatty substances, cholesterol, calcium and other substances on the inner lining of the artery. Over time, the blood vessels can narrow, making it harder for blood to flow through.¹

Atherosclerosis



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After my heart attack, I went home from the hospital on different medications to lower my LDL-C since it was 4.65 mmol/L. I just felt different. I mean, I'd had a heart attack!

I knew some people who'd had a heart attack, but never expected it to happen to me...I felt so alone. I didn't know who to talk to or what to do next. I wasn't just overwhelmed... I was lost.



For a while afterward, I felt powerless and that really knocked me down.

But then I thought of my daughter. She always motivates me.

I learned that the mental aspects of living with heart disease was important to address. So, I went online and found others like me and that made me feel less alone. I was able to set goals for my future health!

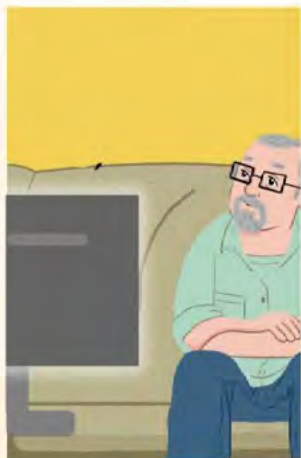




WHAT INCREASES YOUR RISK OF A HEART DISEASE?

One thing the group helped me see was that there were so many **lifestyle choices** that lead to me having a heart attack such as not exercising, eating poorly, gaining weight, and smoking!

And the silver lining was, there was something I could do about them.¹



Not exercising

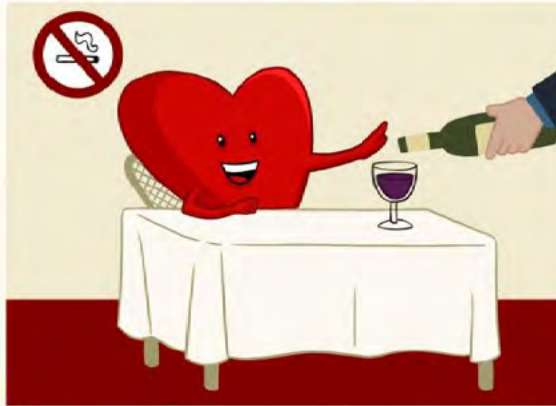
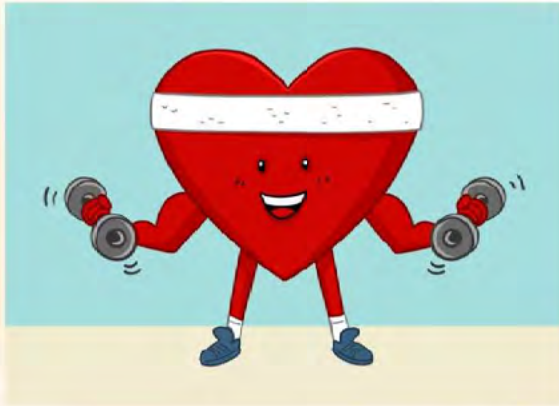
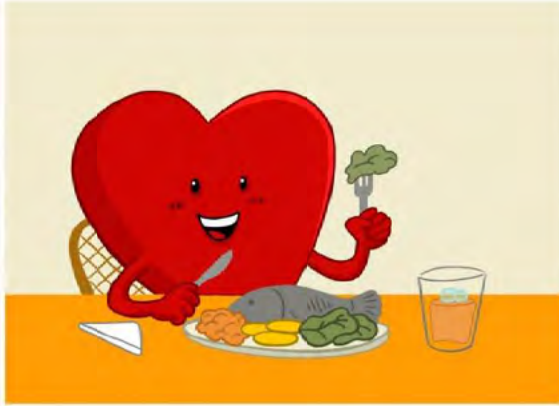


Eating poorly



Smoking

1. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/risk-and-prevention/lifestyle-risk-factors>. Accessed 29 Jan 2021.



Some lifestyle changes you can make to help reduce your risk of heart disease are:¹

- 1) A **heart healthy diet** with fruits, vegetables, whole grains, legumes, lean protein, and low-fat dairy products. Limit sweets, sugary beverages, and red meats.
- 2) Aim for moderate exercise for about two hours and 30 minutes each week if your doctor says it's OK.
- 3) It's hard, but quitting **smoking** and limiting **alcohol** are crucial!
- 4) Talk to your doctor about how to combat other medical conditions you may have.
- 5) Modify life stressors.
- 6) Lose weight for those who are overweight or obese.



I started making a few changes for the better. I was feeling good myself, but it was an added bonus that my daughter was so proud of me.



I took my medications regularly...



I quit smoking...

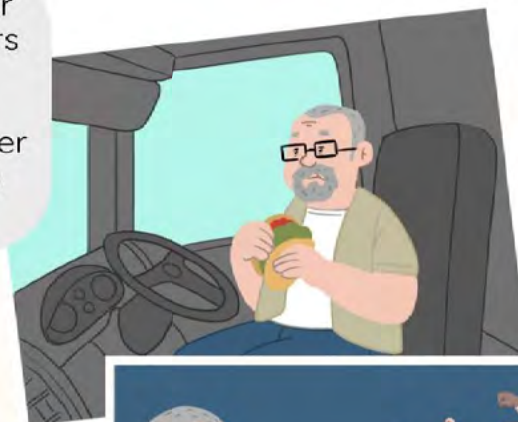


I even hit the gym!



As much as I wanted to diet and exercise, it's easier said than done when you're driving a truck 60 hours a week, and chasing after a young daughter.

It was easy to forget how real the chance of another heart attack was. Honestly, life just got in the way and I sort of forgot about it. BIG MISTAKE!



A FEW YEARS LATER...





Needless to say, I didn't apply that second coat of paint and ended up back in the hospital. Last time, I just let my cardiologist appointments slip by and when I did make them, I forgot half the stuff I wanted to know.

I needed to get my act together, for real this time. So, I made a list of questions to take with me.

QUESTIONS TO ASK THE CARDIOLOGIST:^{1, 2}

- What can we do to lower my chance of having another heart attack? What other risk factors do I need to address?
- What can I do to improve my "stress" and mental well being?
- How are my LDL-C levels right now? What do you recommend?



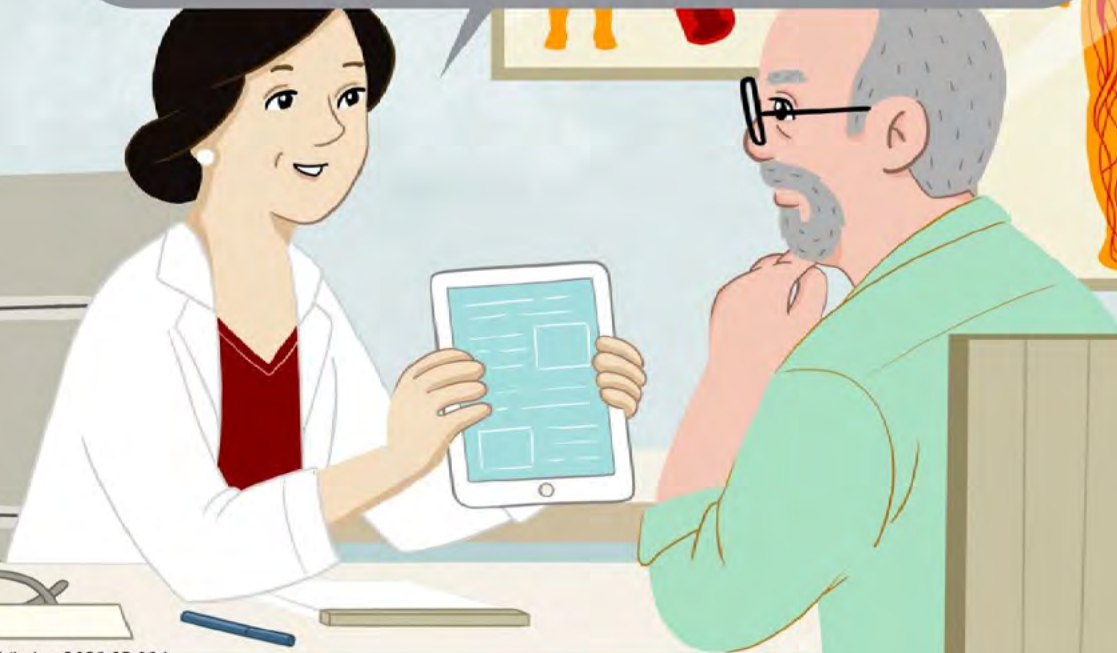
1. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/risk-and-prevention>. Accessed 01 Sept 2021.

2. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/risk-and-prevention/condition-risk-factors/managing-cholesterol>. Accessed 01 Sept 2021.



When I landed in front of my cardiologist I felt guilty, but my doctor was understanding. But, in all honesty, I didn't understand how this happened when I thought I was doing everything right.

Look, one of the factors we can try to control to lower your risk of another heart attack, is addressing your LDL-C level. We can try to get it to below 1.8 mmol/L. Let's consider options that can help you reach that goal.





I didn't think I'd need a second wake-up call, but apparently I did. My LDL-C was not where it should have been despite taking my medications.

Heart attacks and atherosclerosis can be caused by many factors, and lowering LDL-C is just one thing I could do to lower my chance of having another heart attack.^{1, 2}

What I was doing wasn't good enough, so I decided to make more lifestyle changes and keep following up with my doctor.

1. Heart and Stroke.
<https://www.heartandstroke.ca/heart-disease/conditions/atherosclerosis>. Accessed 01 Sept 2021.
2. Heart and Stroke.
<https://www.heartandstroke.ca/heart-disease/risk-and-prevention/condition-risk-factors/managing-cholesterol>. Accessed 01 Sept 2021.

After my second heart attack, I realized I needed to take responsibility. I want to learn from my mistakes and I'm lucky I have my daughter to motivate me!

I plan to lower my LDL-C by making a comprehensive plan with my doctor, changing my lifestyle, and taking my medications.

Remember, there are several factors that contribute to atherosclerosis, which can lead to heart attacks. So to lower my risk of another heart attack, I try to address all the risk factors of plaque formation like controlling my cholesterol levels, blood pressure, diabetes, and making certain lifestyle changes!^{1, 2}



1. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/risk-and-prevention/condition-risk-factors/managing-cholesterol>. Accessed 01 Sept 2021.

2. Heart and Stroke. <https://www.heartandstroke.ca/heart-disease/what-is-heart-disease/types-of-heart-disease>. Accessed 08 Sept 2021.