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Glossary

Adipose tissue: Fat in the body. The deeper abdominal adipose tissue, the kind you can't see that is around your internal organs, is known as visceral adipose tissue.

Anemia: Having a lower than normal amount of hemoglobin in the blood. Hemoglobin is part of the oxygen-carrying protein inside red blood cells.

Angina: The word "angina" comes from the Greek word ankhone, meaning "strangling." It's a type of chest pain or discomfort caused by reduced blood flow to the heart.

Angiogram: See *cardiac catheterization*.

Angioplasty: A procedure to open blocked arteries on your heart. A thin tube is threaded into your arteries with a small balloon and a stent. Once in the area that is clogged or narrowed, the balloon is inflated opening the obstruction and a stent can be inserted.

Arrhythmia: Irregular heartbeat; a variation in the normal beat of the heart. Atrial fibrillation is the most common arrhythmia worldwide.

Artery: A vessel in which blood flows from the heart to all parts of the body.

Atherosclerosis: The condition where your arteries get plugged with plaque from cholesterol that builds up on the inside walls causing continuous inflammation. It results in a "stiffening" of the arteries.

Atria: See *chambers of the heart*.

Atrial fibrillation: See *arrhythmia*.

Autonomic nervous system: This system has two branches, the sympathetic and parasympathetic. These branches work together to control some of the involuntary activities of the body by producing chemicals that direct those activities. The sympathetic branch normally releases a stress hormone called adrenaline.

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Bile: Bile is made by the liver. It is composed of bilirubin, cholesterol, and bile acids and salts.

Blood pressure: See *high blood pressure*.

Blood vessels: Tubes (arteries and veins) through which blood reaches the tissues and organs. The very tiny blood vessels are called the "microvasculature."

Broken heart syndrome: See *Takotsubo syndrome*.

Cardiac catheterization: A procedure that uses x-rays to see your heart's blood vessels and look for any restrictions in blood flow going to the heart. A coronary angiogram is the most common type of cardiac catheterization procedure used to diagnose and treat heart and blood vessel conditions.

Chambers of the heart: Within the heart lie four hollow chambers, two atria and two ventricles. The right and left atria serve as volume reservoir for blood that will be sent to the ventricles. The ventricles serve as pumping chambers of the heart.

Cholesterol: See *lipoprotein*.

Chronic obstructive pulmonary disease (COPD): Long standing inflammatory condition that interferes with normal breathing.

Clot: When some of the blood component clump together, as in a scab that forms when you cut your skin. This is caused by your blood-clotting cells called platelets.

Conduction disorders (heart block): This happens when the electricity travels through the heart intermittently. For better understanding of this condition I want you to imagine an electrical cord with partial broken wires in which sometimes you have to manipulate the wires to help the electricity travel through them.

Coronary angiogram: See *cardiac catheterization*.

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Coronary arteries: The arteries located on the heart that supply blood to the heart tissue. They have multiple branches like a tree. The smallest branches of all (along the outside) are called the microvasculature ("micro" for small).

Coronary artery disease (CAD): A disease of the vessels that supply blood to your heart. This is a long-term condition that increases your risk for, and can eventually lead to a heart attack.

Coronary artery dissection: A break in the internal lining of the wall of the arteries causing a quick stop of blood flow to the heart muscle.

Coronary calcium score: Coronary artery calcium scan measures the calcification of your heart arteries helping us to predict a person's risk of heart disease.

Coronary microvascular dysfunction (CMD): Tightening of the small coronary arteries affecting their walls and inner lining. This reduces blood flow to the heart and is triggered by emotional and mental stress. CMD is associated with a doubling of risk for future heart attack and is more common in women. We think that this is the result of both impaired microvascular dilatation (when those small vessels can't relax properly) and increased microvascular constriction (which involves spasms of these very small arteries). New studies suggest that CMD might be directly related to diastolic dysfunction.

C-reactive protein (CRP): A marker of inflammation. Studies have shown that high levels of CRP in women actually predicted their risk of heart attack even when LDL was within range.

CT scan (computed tomography): An imaging test that uses a number of x-rays to take pictures inside the body. This can be used to see whether the coronary arteries that supply blood to the heart tissue are blocked.

Diabetes: A condition where there are high sugar (glucose) levels in your blood. This results from the body's inability to use blood sugar for energy. In Type 1 diabetes, the

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body no longer makes insulin and therefore blood sugar cannot leave the blood and enter the cells to be used for energy. In Type 2 diabetes, either the body can no longer make enough insulin or the body is unable to use insulin correctly. One of the most severe complications of diabetes is the early onset of plaque and atherosclerosis. When diabetes develops during pregnancy, it's called gestational diabetes.

Diastolic dysfunction: A medical term to explain a stiff heart. Diastolic dysfunction happens as a consequence of your heart not relaxing well. When your heart does not relax well, it gets stiff. New studies suggest that diastolic dysfunction might be directly related to coronary microvascular dysfunction (CMD).

Echocardiogram: A very safe, non-invasive, radiation-free test that uses high-frequency sound waves to do an ultrasound of the heart. Echocardiograms evaluate the structure of the heart, showing abnormalities. It is used to check for arrhythmias and is the most common way to diagnose diastolic dysfunction.

Endothelium: The tissue that forms a single layer of cells lining the blood vessels.

Exercise treadmill test (ETT): See *stress test*.

Gestational diabetes: See *diabetes*.

Glucose: The type of sugar that's the most important source of energy in all organisms. It's the sugar we refer to when we say blood sugar. All sugars are a type of carbohydrate.

Heart attack: When your heart gets injured because it did not receive appropriate blood flow through the coronary arteries. This is also known as "myocardial infarction," or MI, and is often the result of many years living with improperly managed heart disease.

Heart failure (HF): A condition in which the heart doesn't pump blood effectively. Either because it is weak or it cannot fill properly.

Heart rate: Also known as your pulse.

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High blood pressure: Also known as hypertension (HTN) or the “silent killer.” Blood pressure is the force of the blood pushing against the wall of the blood vessels. When the heart beats the flow of the blood through the arteries pushes with high force over a sustained period of time. Blood pressure has two components: Systolic blood pressure and diastolic blood pressure. The systolic blood pressure is the top number that represents the pressure generated by the heart when it beats to pump blood. Diastolic blood pressure is the bottom blood pressure that represent the pressure in the blood vessels between heart beats. If you have a blood pressure monitor, your blood pressure is elevated if it's higher than 140/90 mmHg. Hypertension is a diagnosis made after consecutive readings with elevated blood pressure.

Homocysteine: Homocysteine is made by the metabolism of an essential amino acid mostly found in animal protein called methionine. High levels of homocysteine have been linked with damage of artery walls, which can cause plaque buildup.

Inflammation: When the body's immune system reacts to infections, wounds or tissue damage. When it occurs for a long time it can eventually lead to several diseases or conditions including plaque formation and stiffening of your heart and arteries.

INOCA: The acronym for: *ischemia with non-obstructive coronary artery disease.*

Insulin: The hormone produced by your pancreas (an organ near your stomach) that is key for managing blood sugar. Insulin helps the sugar you absorb from your food get out of your blood and into the cells where it can be used for energy or stored for future use.

Insulin resistance: A condition in which a person's body tissues have a lowered response to insulin. It is like it has built up tolerance (or “resistance”) to the hormone, making it less effective. See Diabetes.

Ischemia: Areas of reduced oxygen supply due to lack of blood supply.

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Kidney disease: The gradual loss of kidney function. Failure of the kidneys to filter waste products from the blood properly. When kidney disease impairs the kidney function and lasts longer than three months, this is called Chronic Renal Insufficiency (CRI).

Lipid profile: See *lipoprotein*.

Lipoprotein (LDL & HDL): A group of proteins capable of mixing with water or blood that combine with fat to transport it through your bloodstream. LDL is low-density lipoprotein (sometimes called *bad* cholesterol) and HDL is high-density lipoprotein (sometimes called *good* cholesterol). You want your lipid profile cholesterol report to have “Low LDL, High HDL.”

Lipoprotein(a): A type of lipoprotein that helps transport the cholesterol in the blood. What makes this “(a)” one different is that it resembles the *bad* cholesterol (LDL) and other particles that promote clotting. It also promotes inflammation and this is not good to have circulating inside your blood vessels. You should be tested for Lp(a) levels if you have been diagnosed with heart disease but don’t have “traditional risk factors” or if you have family history of early heart disease. If your level of Lp(a) is 30 mg/dL or higher, your risk for heart disease is higher.

Lipoprotein lipase: A substance that increases the breakdown of cholesterol. It can lead to the accumulation of fat in the abdominal region.

Menopause: Menopause is diagnosed when a woman has not had a menstrual period for 12 consecutive months. It’s associated with lower levels of the hormone estrogen. As women age, especially after menopause, the proportion of body fat in the midsection increases.

Microvasculature: See *coronary arteries*.

Microvascular disease: Due to lack of blood flow to the heart from dysfunction of the microvasculature. It is the main difference between women and men with CAD. See Coronary microvascular dysfunction.

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MINOCA: The acronym for: *myocardial infarction with no obstructive coronary artery disease*.

Myocardial infarction: See *heart attack*.

Nervous system: See *autonomic nervous system*.

Nitric oxide: A compound produced by the lining of the interior wall of the arteries. It helps widen the blood vessels.

Oxidation of LDL: An example of oxidation is rusting of metals. You don't want your LDL to get too oxidized because it makes it even more damaging. You can help to combat this by eating more antioxidants like those in colorful fruits and vegetables.

Palpitations: A strong heartbeat or a racing pulse indicating increased blood pressure. It's the sensation that your heart is beating fast or like butterflies on your chest.

Peripheral vascular disease (PVD): A disease of the arteries that supply the rest of your body, beyond your heart. Also known as *peripheral arterial disease (PAD)*.

Plaque: Mix of cholesterol, calcium, and scar tissue. (Whenever you see the word atherosclerosis in this book think about plaque.) Plaque formation is stimulated by many things, including smoking. The plaque inside the arteries can be stable or unstable plaques. The less stable the plaque, the more likely it is to break apart or "rupture" and cause a heart attack.

Physical activity (PA): Being active means a lifestyle that includes physical activity equivalent to walking more than three miles per day at 3-4 miles per hour, in addition to the activities of daily living.

Postmenopausal: After the menopause. Menopause is diagnosed with a women has not menstrual period for 12 consecutive months.

Prinzmetal angina: Intermittent spasms of the coronary arteries that causes chest pain.

Processed foods: See *ultra-processed foods*.

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Pulmonary congestion: Often referred to as fluid or water in the lungs and can result from diastolic dysfunction ("stiff heart").

Pulse: See *heart rate*.

Remodeling: After a heart attack there is damage to your heart. As part of the healing process, there will be remodeling of the heart that is manifested as changes in size and function of the heart.

Statins: Medications that appear to reduce overall heart disease risk. Statins lower the amount of LDL in the blood by reducing the production of cholesterol in the liver. Some of the statins include atorvastatin (Lipitor®), fluvastatin (LEscol®), lovastatin (Mevacor®), pitavastatin (Livalo®), pravastatin (Pravachol®) rosuvastatin (Crestor®), and simvastatin (Zocor®).

Stent: A small metal cylinder that is inserted inside an artery to release a blockage due to plaque.

Stiff heart: See *diastolic dysfunction*.

Stress test: An exercise stress test that is one of the most commonly used tests to reveal hidden problems in the heart making your heart work harder. It is similar to what a mechanic does when checking your car engine. The most common one is the Exercise Treadmill Test (ETT) where you walk or run on a treadmill or pedal on a stationary bike. During this test, your doctor monitors blood pressure, heart rate, and your heart electrical activity for changes that suggest a blockage of blood flow to the heart.

Stroke: A condition that happens when your brain doesn't get enough oxygenated blood.

Tachycardia includes:

- SVT (supraventricular tachycardia): Rapid pulse coming from the upper chambers of your heart (the atria).

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- Premature contractions: A premature beat causes your heart to beat early before the next regular heartbeat. They can go unnoticed but some patients experience palpitations, dizziness, and lightheadedness. Some others experience a strong heartbeat and sometimes the sensation that the heart stop beating momentarily.
- Atrial fibrillation: In this type of arrhythmia the heartbeat that originates in the upper chambers of the heart is irregular, unorganized and rapid. This make the upper chambers of the heart quiver instead of beating effectively.
- Atrial flutter: A more organized arrhythmia that originates in the atrium. Although treated similarly to atrial fibrillation, in this condition the heartbeat appears more organized.
- Ventricular tachycardia: Originates in the ventricle. Mostly seen in women with heart disease. The treatment varies and it depends on symptoms and other medical conditions. This is considered a serious rhythm problem that can become a life-threatening problem. This arrhythmia requires immediate attention.

Takotsubo syndrome: Microvascular constriction that reduces blood flow to the heart muscle

Triglycerides (TGs): The most common type of fat in your body. When your blood level of TGs are too high, this is a risk for heart disease.

Ultra-processed foods: Ultra-processed foods include everything that has been milled, canned, cooked, frozen, or dehydrated; however, these on their own do not necessarily make them bad. What makes them bad is the number of changes the ingredients go through as food manufacturers improve flavor, color, and shelf life to make it a harmful processed food. For example, milling of grains will remove the bran and the germ which contain most of the healthy fiber, protein, vitamins, and minerals. Another example is the addition of sugar or salt to food which makes it less healthy. Canned foods, sugar coated dried fruits, soda, sugary or savory packaged snack foods, packaged breads and pastries, breaded chicken nuggets and fish, and instant noodle soups are all examples of ultra-

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processed foods. Look for other additives and trans fats listed in the Nutrition Facts table (See Appendix I for a table of the most common food additives).

Vasospastic disease: Spasm of the main branches of the coronary arteries.

Ventricles: See *chambers of the heart*.

Visceral adipose tissue: See *adipose tissue*.