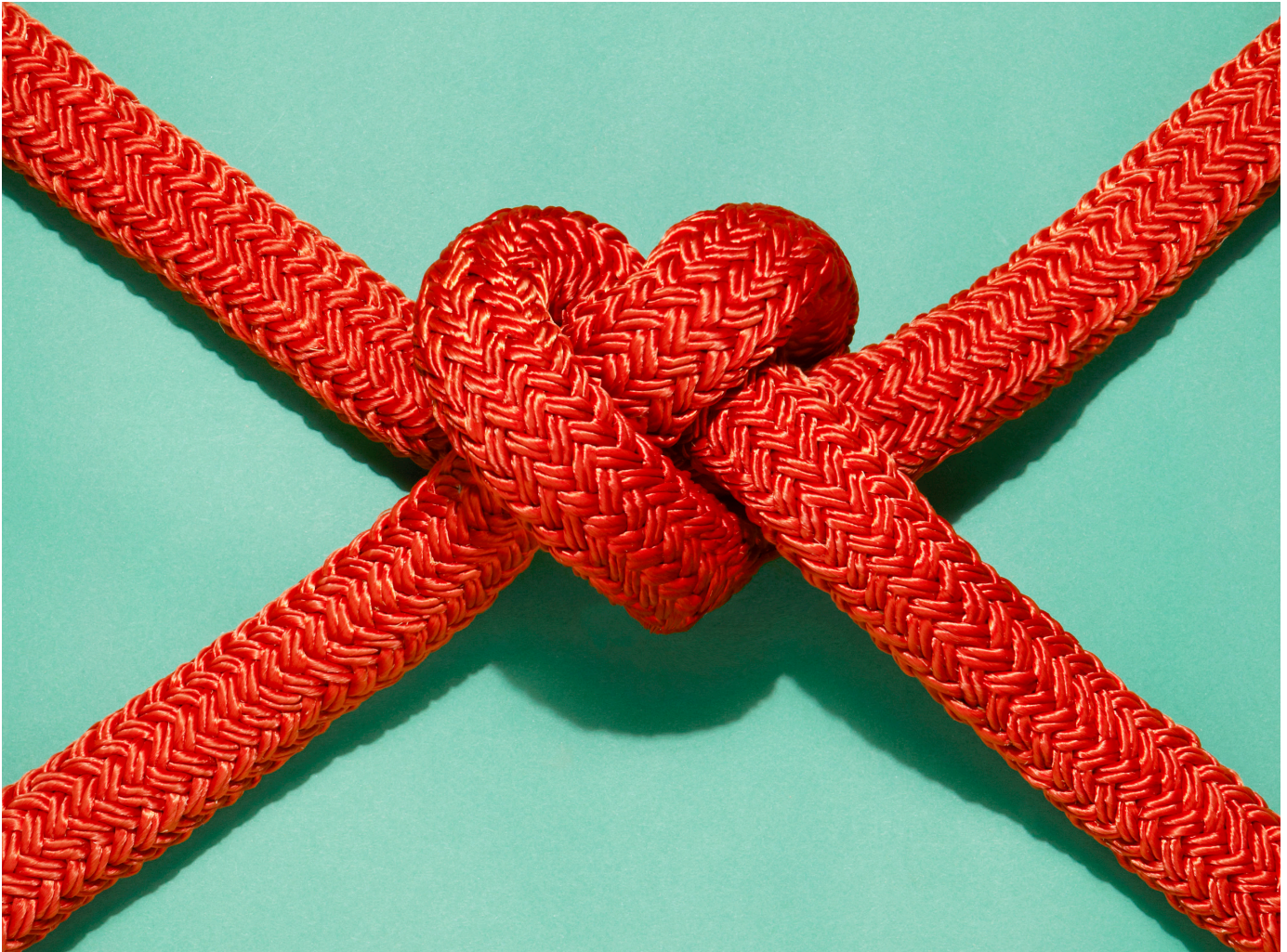




# YOUR GUIDE TO **COMMON HEART HEALTH TESTS**

WHAT THEY ARE, WHAT THEY MEASURE, WHEN THEY'RE NEEDED





Heart-health tests reveal valuable information about how well your heart is working.

GETTING A CLEAR PICTURE of your heart’s condition helps your doctor make decisions about both prevention and treatment of heart disease, stroke and other cardiovascular conditions.

Routine screening tests that measure blood pressure and cholesterol levels are recommended for everyone, because they provide key clues to your risks for heart disease.

“Other tests are driven by what may be wrong with the patient,” says Johns Hopkins cardiologist **Michael Blaha, M.D., M.P.H.** Depending on your symptoms or other indicators, such as a family history of heart disease, these more sophisticated tests can provide a closer, detailed look at the concerning issue.

On these pages you’ll find an easy-to-understand overview of seven key heart tests that your doctor may recommend. Use this information as a conversation-starter with your doctor, and as a tool in managing your own good heart health.



## MEET OUR EXPERT

**MICHAEL BLAHA, M.D., M.P.H.**  
Director of Clinical Research,  
Ciccarone Center for the  
Prevention of Heart Disease



TEST

## ELECTROCARDIOGRAM

(EKG OR ECG)

### HOW IT WORKS

This quick, noninvasive test measures the electrical activity of the heart in just a few minutes. Electrodes (small plastic patches that stick to the skin) are placed along the chest, arms and legs. When connected by wires to the EKG machine, they send data about the pace and strength of how the heart is beating, and the timing of the pulses. (Despite its name, no electricity goes through the body.)

### WHY IT'S HEART SMART

It's one of the fastest and simplest tests to check the state of the heart and find the cause of symptoms. EKGs are also used to evaluate how heart medicines and pacemakers are working, and to get a baseline reading on heart function that can be compared over time.

### WHO GETS IT

People of any age having symptoms such as high blood pressure, chest pain, palpitations (fast or otherwise irregular heartbeats), shortage of breath or dizziness, or who have a history of heart disease. Your doctor may order this test for other reasons, such as to evaluate the heart after a heart attack.

TEST

## ECHOCARDIOGRAM

### HOW IT WORKS

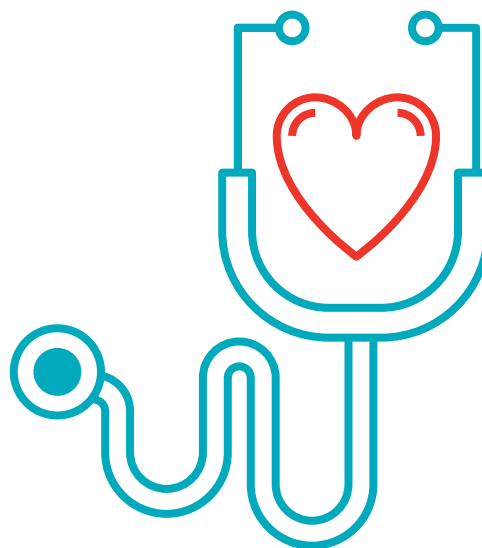
This ultrasound-based test assesses the function and structures of the heart. A device called a transducer is placed on the chest and converts sound waves that bounce (“echo”) off the heart into images of the walls and valves that can be examined. It's noninvasive and can be done on an outpatient basis in less than an hour. There are various types of echocardiograms that depict blood flow and heart structures in different ways—for example, using three-dimensional images or color.

### WHY IT'S HEART SMART

By being able to see the heart, doctors can help diagnose congestive heart failure, valve abnormalities, thickened heart muscle, chamber enlargement and other issues.

### WHO GETS IT

People of any age who are suspected of heart disease because of such symptoms as chest pain, shortness of breath, palpitations or advanced high blood pressure. It's also used to evaluate the heart for other conditions.



**YOUR DOCTOR WILL WORK WITH YOU TO HELP YOU UNDERSTAND YOUR PERSONAL HEART DISEASE RISKS AND YOUR INDIVIDUAL TEST RESULTS SO THAT TOGETHER YOUR HEART HEALTH CAN IMPROVE. —MICHAEL BLAHA, M.D.**

TEST

## HOLTER MONITOR

### HOW IT WORKS

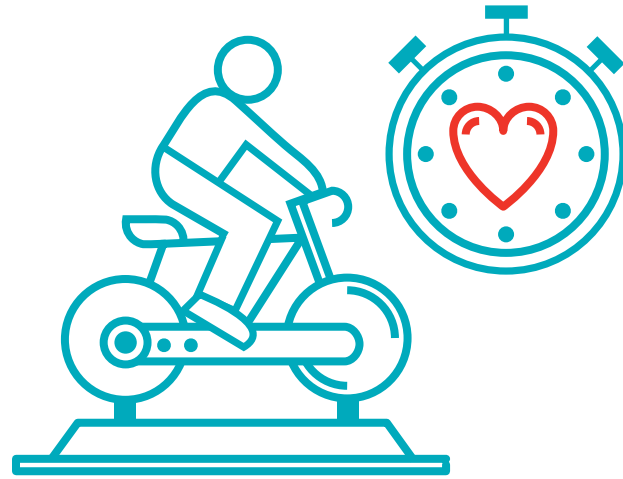
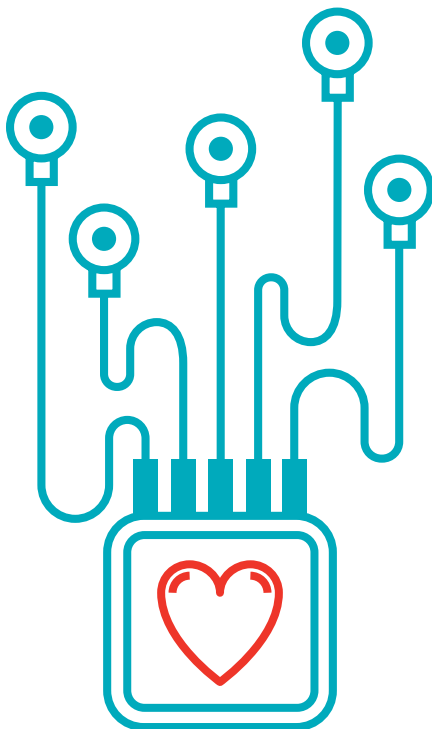
This is a type of electrocardiogram that's done for 24 hours or longer. Electrodes are attached to your chest and, by wires, to a portable, wearable recorder device. You wear the device across your body (like you would a small cross-body bag or canteen) as you go about your normal day, except for showering, swimming or sweating a lot, so the electrodes don't fall off. Some Holter monitors record continuously; some also have a feature that lets you alert it when you begin to feel symptoms.

### WHY IT'S HEART SMART

Doctors can analyze data collected over time rather than at just one point in time, so a Holter monitor provides a more detailed look at the heart's electrical function.

### WHO GETS IT

Someone with a history of irregular heartbeats or who is suspected of having an arrhythmia that didn't show up on a regular (resting) EKG.



TEST

## STRESS TESTS

### HOW IT WORKS

In an exercise stress test, also known as a "treadmill test," the patient walks on a treadmill or rides an exercise bike in order to monitor the heart during exercise. The incline and speed change during the course of the test, requiring the heart to work harder toward a predetermined target heart rate. Linked with either electrocardiogram or echocardiogram imaging equipment, the test reveals whether the heart is getting enough blood flow and also determines exercise capacity.

In another type of stress test (a pharmacologic stress test), the "stress"

isn't exercise but a drug that causes the heart to beat faster, simulating the effort of an actual physical workout.

### WHY IT'S HEART SMART

These simple tests can reveal blocked arteries and other damage from coronary artery disease that wasn't previously known.

### WHO GETS IT

Someone having shortness of breath or chest pain, as part of an evaluation for heart disease. Stress tests are also given after cardiac rehab to determine the level of exercise to which a heart patient can safely return.

TEST

## ABDOMINAL AORTA ULTRASOUND

### HOW IT WORKS

The aorta is the main blood vessel leading away from the heart. For this painless, noninvasive test, a transducer device is moved along the chest to produce high-frequency sound waves that produce images of the aorta.

### WHY IT'S HEART SMART

It's used to screen for abdominal aortic aneurysms (AAA)—a condition that happens when the walls of the aorta

weaken and enlarge. The bigger this ballooning effect, the greater the risk of a rupture, which can be fatal.

### WHO GETS IT

Men between the ages of 65 and 75 who have any history of smoking or a family history of AAA are recommended for at least one screening because it happens more often in men. It is also used to monitor a diagnosed AAA over time to see if it changes.

TEST

## CAROTID ULTRASOUND

### HOW IT WORKS

Ultrasound (high-frequency sound waves) is used to create an image of the arteries in the neck, known as the carotid arteries. A transducer is placed on the skin, using gel to make it glide more easily. It's a noninvasive procedure that allows doctors to measure the speed of blood flow in order to estimate how much blockage is there.

### WHY IT'S HEART SMART

The same plaque buildup that can clog and harden arteries leading away from the heart (called atherosclerosis)

can happen in the carotid arteries supplying blood to the brain, raising the risk of stroke. So doctors use this test to find signs of disease both at the early and late stages.

### WHO GETS IT

It's often ordered for people who have had fainting or other stroke-like symptoms, or anyone who has had a stroke or transient ischemic attack. The test is also used when your doctor suspects a blockage in the neck based on your heart-health profile or from listening to the neck.



TEST

## CORONARY CALCIUM SCAN

(CORONARY ARTERY CALCIUM TESTING)

### HOW IT WORKS

The patient lies in a scanner for about 10 minutes—a painless procedure known as computed tomography (CT) scanning—while images of the coronary arteries are produced. The doctors are looking for calcifications, plaque deposits in the arteries that are an early sign of coronary artery disease.

### WHY IT'S HEART SMART

Being able to see plaque buildup early gives concrete additional information about your heart health. That makes it one of the best ways to make treatment decisions, says Blaha. For example, it can

help determine whether to start statin or aspirin therapy and at what doses.

Research has shown that coronary calcium scans can reveal heart disease in patients whose other markers (like blood pressure and cholesterol) show them to be at low risk.

### WHO GETS IT

It is intended for people with risk factors for heart disease or who are trying to decide whether to go on aspirin or statin therapy. This test is often given to patients in midlife because this is frequently when the earliest signs of heart disease appear.



## ASK YOUR DOCTOR

These heart-health tests yield important information that your doctor will use to better shape your treatment program. But you play an important role too. That's because the best care is the result of an active partnership between patient and caregivers. "It's always important to understand why a test is being ordered and what to expect," says Michael Blaha, M.D.

Here are some key questions to ask your doctor.

- 1 Why is this test necessary and what do you hope to learn from it?
- 2 How is it performed?
- 3 Are there any special instructions I need to follow ahead of the test?
- 4 Who will do it?
- 5 When and how will the results will be explained to me?



**THESE TESTS PROVIDE VALUABLE INFORMATION THAT YOUR DOCTOR CAN USE TO SHAPE THE BEST TREATMENT—OR PREVENTION—PLAN FOR YOU.**

—MICHAEL BLAHA, M.D.

# YOUR PERSONAL RESULTS

USE THIS SPACE TO TAKE NOTES ABOUT YOUR INDIVIDUAL TEST RESULTS. KEEP THIS INFORMATION IN A HANDY SPOT AND BRING IT ALONG TO FUTURE APPOINTMENTS WITH YOUR DOCTOR(S) AND OTHER HEALTH CARE PROVIDERS (FOR EXAMPLE, IF YOU'RE ALSO BEING TREATED FOR ANOTHER CONDITION).

| TEST NAME                           | DATE |
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| ORDERED BY                          |      |
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| RESULTS                             |      |
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| SPECIAL INSTRUCTIONS FROM MY DOCTOR |      |
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**LEARN MORE ONLINE** Find additional information about the prevention, detection and treatment of heart disease and other cardiovascular conditions at the Johns Hopkins Health Library: [hopkinsmedicine.org/healthlibrary](http://hopkinsmedicine.org/healthlibrary).