Cleveland Clinic
HEART ADVISOR™
Advice and information from the world leader in coronary care and research™
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ALSO IN THIS ISSUE

Prostate Cancer Hormone Therapy Tied to Higher Heart Risk

Men on anti-androgen treatment should consult a preventive cardiologist.

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A cardiologist can help prevent hormone therapy for prostate cancer from causing harm to the heart.

A mainstay of treatment for men who undergo surgery or radiation therapy for prostate cancer is medication to suppress the male hormones that feed the cancer cells. The treatment, known as androgen-deprivation therapy (ADT), plays a vital role in helping the vast majority of patients achieve remission or cure. But the tradeoff is a sharply increased risk of heart disease.

"Cardiovascular disease (CVD) risk in this patient population is real and significant," says genitourinary medical oncologist Jorge A. Garcia, MD, The Kerscher Family Chair for Clinical Prostate Cancer Research at Cleveland Clinic. "CVD is the most common non-cancer cause of death in men undergoing ADT, especially those on long-term ADT."

Benefits Versus Risks

Using ADT to stop the production of testosterone triggers changes that cause levels of blood sugar, cholesterol and body fat to increase. Additionally, some of the new oral medications designed to block the effects of androgens on prostate cancer cells can lead to hypertension. Studies have shown an increased risk of diabetes, coronary artery disease, heart attack, stroke and sudden cardiac death in men who use ADT. The risk is particularly high in those with prior CVD or its risk factors.

Who Needs ADT?

ADT may be prescribed for as little as six months for men with intermediate-risk localized prostate cancer who choose radiation therapy and men undergoing salvage radiation after surgery. It may be given for up to 24 months to men with high-risk disease and indefinitely to men with metastatic prostate cancer. The longer on ADT, the higher the risk.

Moreover, all men with metastatic disease currently receive intensive treatment, with ADT plus (for the most part) one of the new oral agents that can exacerbate CV-related issues.

How to Guard Your Heart

Addressing individual risk factors can minimize CVD risk. If you have prostate cancer, are on ADT and don't already have a cardiologist, ask your doctor to refer you to one.

"We oncologists are good at assessing patients for factors that might increase the risk of a CV event. However, we should not be the ones who start you on drugs to lower your cholesterol, blood sugar or blood pressure," says Dr. Garcia.

"Because the management of these issues requires special training and expertise, we partner with CV medicine specialists to help us minimize risks and manage them effectively. In our prostate cancer clinical program, we expect every patient we start on ADT to be evaluated by our preventive cardiologists within a year. This multidisciplinary collaboration translates into better outcomes."

Cleveland Clinic

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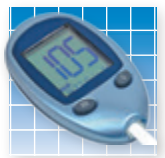
Research Reveals Which Diet Is Best for the Heart

What type of diet should you follow to lower your risk of heart disease? Results of the OmniHeart trial, published Aug. 2 in the *International Journal of Cardiology*, added to a growing body of evidence from other studies that eating a variety of healthy foods is more important than the specific diet you follow. Researchers randomized 164 adults with elevated blood pressure to three diets: the DASH diet, which contains 51% healthy carbohydrates (carbs), a high-protein diet that limits carbs and a diet that replaced a proportion of carbs with healthy unsaturated fats. Each participant followed their diet for six weeks, after which they switched diets, then switched again until everyone had been on all three diets. Surprisingly, all diets caused high-sensitivity troponin (a marker of cardiac injury) and high-sensitivity C-reactive protein (a measure of inflammation) to drop. This underscores that consuming diets high in fruits and vegetables quickly reduces injury to the heart.

Lower Blood Pressure Does Not Increase Lightheadedness

In orthostatic hypotension, systolic blood pressure (SBP) drops 20 mmHg or more or diastolic blood pressure drops 10 mmHg or more when a person changes positions from sitting to standing or vice versa. The result can be dizziness, fainting, falls, dementia, cardiovascular disease or premature death. When the definition of high blood pressure was lowered 10 points in 2017, some physicians worried that further reducing systolic blood pressure (SBP) in patients with prior stroke might cause this fragile population to develop orthostatic hypotension. A study presented at the American Heart Association's Hypertension 2019 Scientific Sessions in September revealed these fears to be unfounded. The study assigned 3,020 recent stroke patients to the standard SBP goal of 130-149 mmHg or a more intensive goal of less than 130 mmHg. The percentage of patients who experienced symptoms of orthostatic hypertension was small and virtually the same in both groups.



Better Blood Sugar Control Improves Ablation Results

Patients with diabetes have an increased risk of developing the arrhythmia known as atrial fibrillation (Afib). Catheter ablation is now considered the first-line treatment for preventing Afib episodes. However, ablation tends to be less successful in patients with diabetes. To examine the role of glycemic control on Afib recurrence, Cleveland Clinic electrophysiologists studied pre-ablation HbA_{1c} rates in 298 patients with diabetes. Their findings, published in the August 2019 *JACC: Clinical Electrophysiology*, confirmed that higher HbA_{1c} rates at the time of ablation were associated with higher post-ablation Afib recurrence rates. Almost 69% of patients with HbA_{1c} levels above 9% developed recurrent Afib, compared with 32% of those with HbA_{1c} levels below 7%. Nearly 92% of patients whose HbA_{1c} levels worsened during the 12 months prior to ablation developed recurrent Afib—a problem that occurred in only 2% of patients whose HbA_{1c} improved 10% or more in this same time period.

Common Electrical Abnormalilty Can Be Deadly

Heart attack may be the leading cause of death among U.S. adults, but electrical abnormalities in the heart are more likely to kill. Cleveland Clinic researchers found that any type of left ventricular conduction disease (LVCD) strongly increases the risk of all-cause and cardiovascular death. Their conclusion, published in the *American Journal of Cardiology* on Oct. 1, was based on data from 22,607 patients. All had undergone baseline 12-lead electrocardiograms. The researchers examined these ECGs for abnormalities in the heart's electrical system that interfere with proper timing of contraction and relaxation of the heart 's chambers during heartbeats. In a mean follow-up period of 34 months, two forms of LVCD—left bundle branch block and intraventricular conduction delay—were associated with a higher risk of death than left-ventricular hypertrophy, coronary artery disease or diabetes.

What's Good for Your Heart Is Good for Your Kidneys

Your heart health and kidney health are closely linked.

If you are a regular reader of *Cleveland Clinic Heart Advisor*, you know the major modifiable risk factors for heart attack and stroke are diabetes, high blood pressure (hypertension), high cholesterol, obesity, physical inactivity and smoking.

You have learned that changing longstanding habits and taking appropriate medications to modify those risk factors are necessary to prevent a potentially deadly cardiovascular event.

You may not be aware that the steps you take to improve your heart health can help prevent kidney damage from the same disease processes.

"These organ systems are intertwined, so what's good for the heart is good for the kidneys and vice versa," says Cleveland Clinic nephrologist Michael Lioudis, MD.

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Most people do not give their kidneys much thought until these mighty organs stop working like they should. Fortunately, any measures you take to lower your risk of heart disease will help your kidneys remain healthy, too.

What Your Kidneys Do

Your kidneys may be small—about the size of your fist—but they are mighty. They do much more than filter blood and eliminate waste as urine. They regulate electrolytes, which are electricity-conducting chemicals necessary for muscle and nerve cell function. They also balance sodium and fluid levels in the body and produce hormones that control blood pressure.

Just as years of relentless high blood pressure and high blood sugar levels wreak havoc on the inside of the coronary arteries, they also damage the blood vessels inside the kidneys. When the delicate matrix of blood vessel filters begins to fail, waste builds up in the bloodstream, protein and sugar may spill into the urine and the body retains fluid.

When kidney function declines to a certain low percentage of normal, dialysis is needed to remove waste from the body. Dialysis is a lifesaver, but it doesn't do what the kidneys can do. "Think of it as a temporary form of life support until a kidney transplant hopefully can be done," says Dr. Lioudis.

That's why maintaining good kidney health is so important.

Are You At Risk?

Having heart disease does not mean you will develop kidney disease, but it may increase your risk. Of all the shared risk factors, years of poorly controlled high blood pressure or high blood sugar levels pose the greatest threat.

And if your kidney function begins to worsen, you may be unaware it's happening.

"Symptoms are rare. You may feel fine, but this doesn't mean your kidneys are okay," says Dr. Lioudis. "By the time blood and urine tests show changes in kidney function, the health of these organs has significantly declined."

What You Can Do

If you have heart disease, your cardiologist will monitor your heart health and the state of your risk factors on a regular basis. It's a great plan, but it's not enough: You also should see your primary care physician (PC) for routine health maintenance at least once a year.

Your PC will do urine and blood tests to screen for unknown medical problems, provide pneumonia and flu shots and refer you to any other specialists you might need.

"It's the best way to identify an issue like kidney disease in its early stages," says Dr. Lioudis.

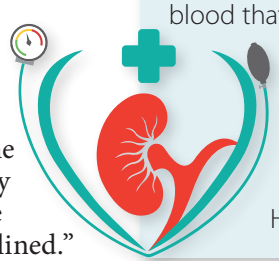
Keep in mind that any step you take to lower your risk of heart disease will benefit your kidneys and other connected organ systems.

"Keep your blood pressure, blood sugar and cholesterol in check; ask your PC for advice if you need help to stop smoking; eat a balanced diet; get some exercise and maintain a reasonable body size. You don't have to become an athlete or strive for the body of a model. Strive to maintain balance in your life," he says.

"If you do what you can to stabilize your condition, and follow up with your PC and healthcare team, you stand a greater chance of staying healthy and enjoying a good quality of life."

What You Should Know

Heart failure with reduced ejection fraction (HFrEF) is another risk factor for kidney disease. In HFrEF, the heart is unable to pump forcefully, and the amount of blood it ejects with each contraction drops. This lowers the amount of blood that passes through the kidneys, causing urine and waste output to drop. Because salt isn't eliminated well, fluid may build up, causing HF to worsen.



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Navigating the Sweet Season Without Feeling Deprived

When visions of sugarplums dance in your head, go ahead and eat one. Just don't eat them all.

Avoiding sweets during the year is no easy task, but in December it's almost impossible. So many holiday memories are inextricably linked to sweet treats: baking Christmas cookies or spinning the dreidel for chocolate *gelt*, for example. And how festive would a holiday party be without a table full of desserts?

If you struggle to minimize your intake of carbohydrates, how can you avoid falling into the seasonal sugar trap? Julia Zumpano, RD, LD, a dietitian in Cleveland Clinic's Section of Preventive Cardiology and Rehabilitation, offers suggestions to help you navigate the season without feeling deprived.

If you are watching your carb intake, it's okay to allow yourself a little wiggle room during the holidays. Just be smart about it.

RECIPE MODIFICATION GUIDE

INSTEAD OF...	USE...	SAVED		SERVING SIZE
		CALORIES	FAT	
Whole milk	Skim milk	60	8 g	1 c (8 oz)
	1% milk	45	5.5 g	1 c (8 oz)
Sweetened condensed milk	Fat-free sweetened condensed milk	200	27 g	14-oz can
Evaporated milk	Evaporated skim milk	191	24 g	12-oz can
Heavy cream	Evaporated skim milk	600	80 g	1 c (8 oz)
Butter/margarine	Soft-tub lite margarine	70	9 g	1 Tbsp
Sugar	• 1 c sugar + 24 packets Equal® • or Sweet 'N Low® • or 1 c sugar + 1 c Splenda®	770	—	2 c
Oil in baked goods	Unsweetened applesauce	750	160 g	½ c (4 oz)
	Puréed prunes (baby food)	110	13.5 g	1 Tbsp

c = cup, g = gram, oz = ounce, Tbsp = tablespoon — Source: Mayo Clinic

Can't Cut the Sugar? Then Cut the Fat.

If you are expected to bring dessert to a gathering and are pressed for time, consider making black bean brownies.

You'll need one box of brownie mix and one can of black beans. Open the can of beans and pour the entire contents into a blender. Blend until smooth. Dump the brownie mix into a bowl and stir in the beans. *Do not* add eggs, oil, water or any other ingredient. Bake according to the directions on the box.

These brownies are low in fat and high in fiber. Eliminating the oil reduces the calorie count per brownie by more than one-third.

1 Remember That Less Is Best. When the scent of gingerbread or the sight of pumpkin pie fills your heart with longing, don't walk away feeling sad. "Take a bite, not a piece," she advises.

2 Reduce Temptations. You'll feel less stressed by the tasty treats around you at holiday time if you control what you bring into your house. "Minimize the sources of sugar in your home, so you are not tempted to eat them," Ms. Zumpano suggests.

3 Balance Your Week. Examine your weekly habits and make trades to balance your sugar intake. "Pass on the donut or frappucino you have every Saturday morning, or give up wine with dinner, if you know you'll be eating out and drinking more alcohol over the holidays," she says.

4 Eat Healthy Foods First. Supplement your diet with good choices to offset small portions of bad choices. For example, eat as much salad as you can before enjoying a small plate of other foods. Wait 20 minutes for your hunger to subside, and then eat a plate of fruit before taking a small serving of your favorite dessert.

5 Limit Holiday Baking. If you are on a low-carb diet, don't bake foods you will be tempted to eat. If you must bake, choose a recipe that is naturally low in sugar, or reduce the amount of sugar your recipe contains. (See the Recipe Modification Guide for ways to reduce sugar and fat.) Another option is to package the sweet treats immediately and give them away.

"Sweeten your dish with fruit juice or applesauce instead of sugar, and you won't be adding empty calories," Ms. Zumpano says. "If you have a favorite holiday dessert, try cutting the amount of sugar in half. It won't affect the way it bakes, and it won't be as sweet, but it will still taste like the holiday dessert you crave."

Continued on the bottom of page 5

Do You Take Daily Aspirin to Prevent Heart Disease?

Some of you might want to reconsider this practice.

If you are at low risk for cardiovascular disease (CVD), but take a daily low-dose aspirin anyway in hopes of preventing a heart attack, you should know that the practice is not likely to be helpful and may be harmful.

"If you've not had a heart attack or stroke, been diagnosed with coronary artery disease, cerebrovascular disease or peripheral vascular disease, or undergone coronary artery bypass grafting (CABG) or stenting, the risk of internal bleeding with daily aspirin will outweigh any cardiac benefit you might derive," says Leslie Cho, MD, head of Preventive Cardiology and Rehabilitation at Cleveland Clinic.

Millions haven't gotten this message. A survey of more than 14,000 U.S. adults published this year found that 23.4% take aspirin "to prevent or control heart disease." Most (22.8%) do it without their doctor's knowledge. The practice is particularly prevalent among adults age 70 and older—possibly because they know CV risk increases with age.

Why Aspirin Use Is Common

Aspirin used to be recommended for primary prevention of heart disease, so it's understandable that some people may not know the recommendations have changed.

Three well-designed randomized, controlled clinical trials published in 2018 found little benefit from regular aspirin use, but consistently high bleeding risks. These findings caused the American Heart Association and American College of Cardiology to change their guidelines on aspirin use in adults who have never had any form of CVD, stroke, heart attack, CABG or stenting. The new guidelines suggest aspirin be considered in selected adults ages 40 to 70 at increased risk of CVD, but with no increased risk of bleeding. They clearly state that adults over age 70, and those of any age at increased bleeding risk, should not use aspirin on a daily basis.

Who Aspirin Can Help

Some patients with CVD risk factors may benefit from regular aspirin use. These include patients who have had type 2 diabetes for more than 10 years or type 1 diabetes for more than 20 years, or have diabetes plus albuminuria, retinopathy, neuropathy or peripheral arterial disease.

Prescribing aspirin is tricky, so Dr. Cho and her colleagues in Cleveland Clinic's Preventive Cardiology Program use an algorithm to determine when the drug is likely to be helpful.

"In general, we like the idea of using aspirin when a patient has a strong family history of CVD, a high coronary calcium score, elevated hs-CRP or lipoprotein(a), and also smokes or has risk factors that are not well controlled."

There are also individuals with noncardiac conditions who may benefit from aspirin, including those at increased risk for colon cancer.

But potential benefit must be weighed against increased bleeding risk due to a low platelet count, history of bleeding, peptic ulcer disease, risk of falling, alcohol use, concomitant use of certain medications or other risk factor.

"Aspirin is not a vitamin. It is not benign, even in low doses," says Dr. Cho. "If you have no risk factors for CVD, or your risk factors are well controlled, aspirin is not likely to help you."

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Aspirin may not protect against a first heart attack, but its value in preventing a second event is well known. "We always recommend aspirin for secondary prevention. Even when patients are allergic to aspirin, we will desensitize them so they can take it. It's that important," says Dr. Cho.

While millions of Americans who don't need daily aspirin take it without their doctor's permission, countless patients who rely on aspirin discontinue it without their doctor's knowledge. This is an unsafe practice that can lead to another heart attack.

Sweets *... continued from page 4*

Don't Be Fooled

Don't substitute artificial sweeteners for sugar. "Artificial sweeteners are so much sweeter than sugar that they stimulate your taste buds and promote your addiction to sweet foods. In the long run, they can enhance your cravings for sugar," Ms. Zumpano explains.

In addition, studies link artificial sweeteners with an increased risk of glucose intolerance, a precursor to diabetes.

Substituting honey, maple syrup, agave nectar or raw sugar for table sugar isn't a good idea, either. They may be natural sweeteners, but they won't reduce the amount of sugar or carbohydrates in a dish.

The Last Word on Dessert

Sweetening food with stevia, a calorie-free herbal sweeter, is an exception. However, you can't bake with it. You are better off enjoying a little bit of sugar.

"Sugar is okay in very limited amounts, especially at holiday time," says Ms. Zumpano. "It's a matter of quality of life."

Valve-in-Valve Replacement Comes of Age

Most heart valves can be safely replaced a second time.

Today, the vast majority of patients can have a worn-out or damaged valve replaced with a brand-new valve in a surgical procedure or through a catheter.

But over time, some of these valves develop the same problems that beset the original valve, and symptoms return. When this happens, a second valve can be implanted inside the first one.

"The valve-in-valve [VIV] procedure is extremely safe," says Samir Kapadia, MD, Chairman of Cardiovascular Medicine at Cleveland Clinic and a world-renowned expert on transcatheter valve replacement.

Beleaguered Aortic Valves

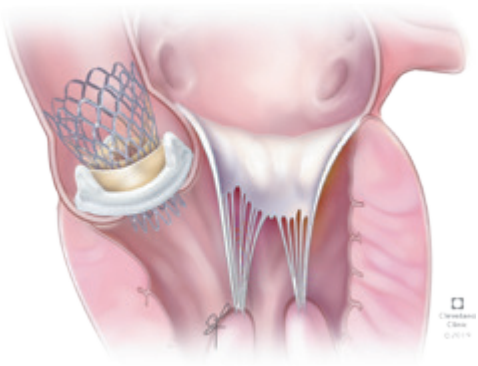
The aortic valve is the most frequently replaced valve. As the gateway to the aorta, this valve undergoes significant stress from the force of blood ejected from the left ventricle into the aorta for distribution throughout the body. These same stresses, plus the progressive nature of valve degeneration, cause some bioprosthetic valves to fail, just as the natural valve did.

Today, transcatheter aortic valve replacement (TAVR) is standard of care for the majority of patients who need their native aortic valve replaced. Surgical valve replacement (SAVR) is reserved for infected valves or patients undergoing surgery for another reason, such as coronary artery bypass grafting.

VIV TAVR

Inserting a bioprosthetic valve inside a replaced valve is a commonly performed procedure with excellent outcomes.

Until recently, however, putting a second bioprosthetic valve inside a small bioprosthetic valve was impossible, since it would have made the valve opening too narrow. A new procedure called valve modification—also known as fracturing— was developed to overcome this obstacle.



Bioprosthetic valves have a metal frame and a ring onto which the leaflets are sewn. They come in a variety of sizes, so a natural valve can be replaced with a valve that has the same-size opening.

"We choose a second valve that is actually larger than the first one. When we insert it, we fracture the ring surrounding the first valve. This allows the replacement to fill the diameter of the aortic root and open fully," Dr. Kapadia explains.

"There are no long-term data to know how long the second valve will last, but we are not seeing early valve degeneration," he adds.

Avoiding Trouble

Bioprosthetic valves designed for catheter-based delivery are folded inside a delivery catheter. When positioned, they either expand naturally or are opened with a balloon, like a stent.

The choice of valve for an individual must be given careful consideration, then perfectly placed for optimal results.

"Balloon-expanding valves are less likely to leak, but self-expanding valves function better for smaller patients. However, these valves have a longer frame, which can make access to the coronary arteries difficult," says Dr. Kapadia.

Replacing Other Valves

Due to the location of the mitral valve, transcatheter mitral valve replacement is done by inserting the catheter into a vein and then puncturing a small hole between the two upper chambers of the heart. Infrequently, the catheter is inserted into the bottom (apex) of the heart through a puncture made between the ribs.

Perfect placement of the valve is critical to ensure it does not obstruct blood flow out of the left ventricle. Due to the technical demands of this procedure, it is more frequently performed at advanced heart centers like Cleveland Clinic, where outcomes are excellent.

The tricuspid and pulmonary VIV procedures are less frequently required, but these replacements are also successful.

After all VIV procedures, an increased risk of blood clots on the leaflets is managed by taking blood thinners for three to six months.

VIV Exceptions

VIV replacement is not done on infected valves, and fracturing cannot be performed on valves with a titanium ring. But they are in the minority. The technique is possible in the majority of patients.

"When the coronary arteries originate near an implanted valve, the feasibility of VIV requires careful consideration and planning. However, the vast majority of patients can have a new bioprosthetic valve inserted without having the old one removed," says Dr. Kapadia.

Oddly, the major disqualification for transcatheter VIV replacement is good health. At this time, the U.S. Food & Drug Administration (FDA) approves the transcatheter approach only for patients considered at high risk for surgery.

HEART ADVISOR

Key: (month/page number. W=Women's Heart Advisor)

Blood Pressure

Coronary Artery Disease/Heart Attack

Cholesterol and Other Lipids

Diabetes and Obesity

Diet/Exercise/Lifestyle

General Cardiovascular Care

Heart Failure

Heart Rhythm Disorders

Other Medical Conditions and Heart Disease

Medications/Supplements/Vitamins

Other Cardiovascular/ Cardiopulmonary Diseases

Prevention

Stroke

Tests

Valve Disease

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Cleveland Clinic

Michael Rocco, MD,
Cleveland Clinic
cardiologist

IN COMING ISSUES

A healthy heart may prevent Alzheimer's

Were you born with a heart problem?

Myths about cardiac rehab

Why is it important to get a flu shot if you have heart disease? When is it too late to get it?

Flu season can begin as early as October and extend as late as May, but typically peaks from December to February. Antibodies to the flu peak four to six weeks after getting vaccinated and then slowly decline for six months. The Centers for Disease Control & Prevention recommends that everyone over 6 months of age without a specific reason not to get vaccinated, such as a history of allergic reactions to the shot, get vaccinated by the end of October. However, getting vaccinated any time before January can still be beneficial.

Even if you are a little late, do it anyway. Since the composition of the flu vaccine changes every year, you should get vaccinated yearly. Many places provide flu shots free of charge.

Flu shots are especially important for those at increased risk of flu exposure and complications: children under age 5, adults over 65, hospital and nursing home workers, long-term care residents and those with compromised immune systems or chronic medical illnesses, such as lung and heart disease. A link between flu and heart disease complications or deaths has been known for decades, and vaccination has been shown to reduce heart-related events triggered by the flu. In one study, flu shots reduced such events by 55% in individuals who had recently suffered a heart attack or stroke. In another study, flu shots reduced cardiovascular deaths by 50% in heart failure patients.

I've been having chest pain, and my doctor scheduled me for a stress echocardiogram. What does this test involve?

Stress tests may be used to help develop a safe exercise program, evaluate arrhythmias or assess response to medical or surgical treatments. However, they are most often performed to evaluate symptoms such as chest pain and shortness of breath in order to determine the likelihood of having significant coronary artery disease (CAD).

A stress test requires exercising on a treadmill or stationary bike while the intensity is gradually increased until you are exhausted or told to stop. Your blood pressure, heart rhythm, symptoms and EKG are continually monitored. Ultrasound is used to painlessly image the structure and function of the heart immediately before and after exercising. Comparing the images allows a physician to evaluate the function of the entire heart as well as the motion of its individual walls at rest and with exercise. When combined with EKG and symptom assessment, these images improve the ability to detect and localize CAD.

Echo imaging also provides a physician with other valuable information, such as the condition of your heart valves and characteristics of your heart muscle and its lining, which may further help to explain symptoms.

Sometimes the quality of the images limits its interpretation. In these cases, the doctor may recommend an intravenous injection of a contrast agent to improve the images.

For your test, you will be asked to wear comfortable shoes and clothing, refrain from eating for four hours before the test and avoid caffeine for at least six hours prior. Your doctor will tell you whether it will be necessary to hold off taking any of your medications before the test.

Nuclear imaging with stress testing is an alternative for assessing CAD by measuring regional blood flow to the heart and overall heart muscle function. Compared with nuclear stress imaging, stress echos take less time to perform, emit no radiation and provide additional information on the heart. Your physician will determine which type of test is best for you.

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