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## ALSO IN THIS ISSUE

#### Heart Beat Newsline

- Take Blood Pressure Meds at Bedtime
- Novel Insulin-Delivery System Improves Blood Sugar Control
- Lithotripsy Used to Blast Hard Lesions
- Ethnic Minorities More Likely to Have Diabetes at a Lower BMI page 2

## Should You Worry About Potassium?

Possibly, if you have heart or kidney disease. page 3

#### Do Statins Give You Achy Muscles?

Here's what you can do to minimize side effects. **page 4** 

#### A Cholesterol More

**Dangerous Than LDL** Learn about Lp(a). **page 5** 

#### Coming: An LDL Drug With Few Side Effects

It's called bempedoic acid.

page 5

## How to Find a Good Specialist

Tips for determining the quality of a doctor. **page 6** 

#### - -

Ask the Doctors Do I need cardiac rehab after valve surgery?...Will diabetes medications help me lose weight?

page 8

# Meat: Should We Love It, or Leave It?

*Recent research contradicts standard advice that eating meat contributes to heart disease. Esteemed cardiologists would like to set the record straight.* 

n October 2019, the medical world was shocked by five articles in the *Annals of Internal Medicine* that contradicted advice physicians have been giving for years: Cut back on eating meat, because it's bad for your health.

After reviewing nutrition studies, the authors determined the evidence linking red meat and processed meat to heart disease and cancer was too weak to recommend anyone change their current levels of meat consumption.

But Cleveland Clinic cardiologists strongly disagree.

"Research consistently shows that the more red meat you eat, the higher your long-term risk of getting and dying from cardiovascular disease," says Stanley Hazen, MD, PhD, Co-Section Head of Preventive Cardiology. "There is a clear association. And it's been seen over and over in both men and women in various populations in various countries."

## Where Researchers Went Wrong

The *Annals* authors conducted their investigation primarily by reviewing three meta-analyses of more than 100 studies, although the studies are too detailed to include here. (You can read them yourself on www.annals.org). It's how they were interpreted that is so controversial.

"The researchers found low- to verylow certainty of benefit in cutting down on red meat. Yet all three meta-analyses showed some reduction in mortality risk with lower red meat consumption," says Dennis Bruemmer, MD, PhD, a colleague of Dr. Hazen's in Preventive Cardiology.

Today, 55% of U.S. adults eat 3.5 or more servings of meat a week. When



If you can't give up red meat and processed meats, eat them less often and in small portions, focusing primarily on the healthy foods in a Mediterranean-style diet.

researchers at Harvard's T. H. Chan School of Public Health crunched the numbers using the same technique as the *Annals* authors, they concluded that a moderate reduction in red meat consumption in this country might prevent 200,000 deaths per year.

"To say the benefit is too small to guide dietary recommendations, and it's okay to eat as much meat as you want, sends the wrong message," says Dr. Bruemmer.

## What's Wrong With Meat?

While no one knows exactly what makes meat harmful, high levels of saturated fat and cholesterol are likely involved.

Additionally, Dr. Hazen's laboratory discovered two nutrients present in meat choline and L-carnitine—are broken down in the digestive process to trimethylamine-N-oxide (TMAO). High levels of TMAO are linked to heart attack and stroke.

Continued on page 3

## HEART BEAT



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## Taking Blood Pressure Medications at Bedtime May Be Helpful

Many patients with high blood pressure require multiple medications in different classes to bring their blood pressure down into an acceptable range. Normalizing blood pressure is necessary to reduce the risk of heart attack and stroke. A large study conducted in Spain and reported

in the Oct. 22, 2019, *European Heart Journal* found that taking the entire daily dose of hypertension medications at bedtime was significantly more effective in this regard. Compared with patients who took the medications upon awakening, those who took them at bedtime gained better blood pressure control and had fewer fluctuations. Over a mean of 6.3 years, this translated into lower rates of heart attack, stroke, heart failure, revascularization and cardiovascular death.



## Novel Insulin-Delivery System Improves Blood-Sugar Control

Patients with type 1 diabetes rely on multiple daily injections of insulin to make up for what their pancreas does not supply. Maintaining even blood-sugar levels, and preventing levels from becoming dangerously high or low, is an ongoing challenge. The use of insulin pumps has been a step

forward in maintaining control. But a new closed-loop insulin delivery system may be even better. Its novel design includes a safety module that helps prevent hypoglycemia (too little blood sugar), automatically corrects blood sugar for missed meals and delivers extra insulin overnight so the patient has near-normal blood sugar levels in the morning. In phase 3 clinical trials, reported Oct. 16, 2019, in the *New England Journal of Medicine*, the closed-loop system increased the amount of time patients stayed in their target blood-sugar range over a one-year period.



## Lithotripsy Used to Blast Hard Coronary Calcium Lesions

Lithotripsy is a common technique for shattering kidney stones into tiny particles that can be safely passed. An early study of lithotripsy conducted through a catheter found the same technique can be safely applied to hard calcium deposits in the arteries. Rather than breaking apart these lesions,

however, the sound waves simply fracture them. This gives the artery some flexibility and allows a drug-eluting stent to be inserted. At this time, the only interventional treatments for coronary calcium are rotational atherectomy, which grinds out the deposits, and laser catheters, which are hard to control in convoluted arteries. Both can break through the artery wall. In this study, reported in *Circulation: Cardiovascular Interventions* on Sept. 25, 2019, as well as the study preceding it, no incidences of perforation were seen.



## Ethnic Minorities Have a Higher Rate of Diabetes at Lower BMI

If you are of Asian, black, Hispanic or Native American descent or of mixed race, there's a higher likelihood you can develop type 2 diabetes at a lower body-mass index (BMI) than whites, or even if your BMI is normal. Although there are guidelines for screening different populations at

different BMI levels, there was little knowledge about the rate of diabetes in different BMI categories. Researchers investigated this issue using records of 4.9 million racially diverse Americans enrolled in three insurance plans. Half were white. As reported in the Sept. 19, 2019, issue of *Diabetes Care*, the overall prevalence of diabetes was 15.9% and prediabetes was 33.4%. The highest prevalence of diabetes was seen in Hawaiians/Pacific Islanders (27.7%, 18% of whom had a normal BMI). In descending order, the rate was 22.2% in Hispanics (13% with normal weight), 21.4% in blacks (13.5% with normal weight), 19.6% in Native Americans (9.6% with normal weight) and 19.3% in Asians (10.1% with normal weight). The rate of diabetes in whites was 12.2%, but only 5% had a normal BMI. In all groups, the prevalence of diabetes increased with age, especially among men. This means that if you are from a non-white background, you should be screened for diabetes regularly as you age, even if your weight is normal.

# Should You Worry About Potassium?

*If you have heart or kidney disease, you may need to take extra measures to maintain normal levels of this important mineral.* 

o you remember what you learned about potassium in science class? You were taught it's a soft metal, a mineral and one of the most abundant elements on earth. But you may not have been told about its many roles in helping our body function normally.

"Potassium is one of the most important electrolytes. As such, it helps conduct electrical impulses through our nerves and muscles," says Cleveland Clinic preventive cardiologist Luke J. Laffin, MD. "It also helps regulate fluid balance to maintain blood pressure and keeps the heart beating in a steady rhythm."

Most healthy people never have occasion to worry about potassium. But if they develop ischemic heart disease, heart failure or chronic kidney disease, their potassium levels can go out of whack.

## **Too Little Potassium**

Too little potassium can increase

## Meat ... continued from page 1

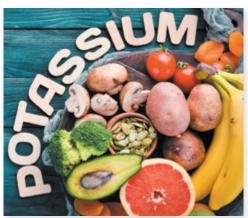
And, frankly, it's been known for years that processed and cured meats are unhealthy for the heart, due to the large amounts of sodium and saturated fat they contain.

## **Bad Habits**

JANUARY 2020

Don't forget that what you serve with meat—too often French fries or a loaded potato—may contribute to the overall negative impact of meat on the heart, as well.

And how much meat you eat is certainly a factor. In the U.S., gigantic portions of beef—top



© Nataliia Mysak | Getty Images Foods naturally high in potassium include potatoes, beans, mushrooms, bananas, nuts, avocados and cooked broccoli and spinach.

your blood pressure or cause extra heartbeats or muscle cramps. Diuretics can block the uptake of potassium along with sodium, causing potassium levels to drop. Sometimes, potassium supplements are prescribed to help replenish the supply.

"The pills are large, so patients don't like them," says Dr. Laffin. "They don't contain much potassium anyway, so instead of taking

steakhouses serve 22-ounce ribeyes—dwarf the 3-ounce portion of meat recommended by American Heart Association dietary guidelines.



supplements, I advise patients to consume more high-potassium foods."

## **Too Much Potassium**

Very high potassium levels can be fatal.

Drugs that can increase potassium levels include angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, eplerenone and spironolactone.

Fortunately, potassium-binding drugs, such as a new drug called patronimer, eliminates excess potassium to prevent levels from rising. "This drug allows patients with heart failure and/or kidney disease to tolerate these beneficial therapies in gradually increasing doses," says Dr. Laffin.

If you have kidney disease, you will not be able to excrete potassium normally. Your doctor will explain what foods to avoid to prevent potassium from accumulating in the body.

## **The Right Amount**

If you don't have heart or kidney disease, it may never be necessary to give potassium a second thought.

"If you eat your fruits and vegetables, you will get enough potassium, and your kidneys will keep the level in balance," says Dr. Laffin.

## Is Meat Off the Table?

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Whenever red meat is on the menu, be sure to

choose healthy side dishes.

delicious grilled vegetables

For example, substitute

for a baked potato with

cheese and bacon.

Giving up meat may be ideal for our heart health, but Dr. Bruemmer feels it is unrealistic to ask people who

> love meat to eliminate it from their diet. Instead, he advocates making smarter choices.

"Cut way back on how often you eat meat, and limit the portion size," he suggests. "A small piece of lean meat once a week might be okay, if you don't cook it in butter and salt. Skip the basket of fries and enjoy it with vegetables and a green salad."

# **Do Statins Give You Achy Muscles?**

# *If symptoms caused you to stop taking these beneficial drugs, try these tips for preventing or minimizing side effects.*

vidence that cholesterol-lowering statins prevent heart attacks and strokes is so compelling that these medications are a "must" for anyone with cardiovascular disease or its risk factors. But statins can sometimes cause symptoms that force patients to stop taking them and lose the beneficial protection they provide.

If this happened to you, don't give up on statins until you've tried the four steps below.

"True statin intolerance—when a person cannot take a statin even once a week—is extremely rare," Leslie Cho, MD, section head of Preventive Cardiology & Rehabilitation at Cleveland Clinic and director of the first and largest dedicated program for patients with statin intolerance.

## What "Intolerance" Means

People who are statin intolerant are unable to tolerate the lowest dose of two or more statins, due to adverse effects on the muscles, joints or liver. Within a month of starting statin therapy, they may feel aches

## **LDL: Lower Is Better**

As LDL levels drop, so do deaths from coronary artery disease, heart attack and stroke, as well as revascularization.

An LDL level of 70 milligrams per deciliter (70 mg/dL) is recommended for anyone with cardiovascular disease. In 2018, researchers analyzed data from large clinical trials where statins and PCSK9 inhibitors were used to achieve LDL levels as low as 21 mg/dL. They found cardiovascular events safely dropped as LDL levels plummeted.



People who are statin intolerant may experience pain and weakness in their thighs or other large muscles.

or weakness in the large muscles of their arms, shoulders, thighs or buttocks on both sides of the body.

Five to 10% of people who try statins are affected. It's more common in the elderly, in women and in those taking the more potent statins. Fortunately, these effects disappear within a month after stopping statin therapy.

If you think you can't take statins, follow these four steps in order:

## **1. Check for Interactions**

Sometimes, certain foods or medications prevent the body from eliminating statins at the normal rate, causing statin levels to rise. The most common culprits include:

- Heavy alcohol consumption
- The calcium-channel blockers diltiazem and verapamil
- The antiarrhythmic drugs amiodarone and digoxin
- Antibiotics ending in—mycin
- Antifungal drugs ending in— azole
- Cholesterol-lowering fenofibrates If discontinuing these substances doesn't eliminate statin intolerance, go to step two.

## 2. Try a Different Statin

Most statins are lipophilic, which means they passively diffuse into the muscle. These statins—atorvastatin (Lipitor), simvastatin (Zocor) and fluvastatin (Lescol)—are more likely to cause muscle aches. The hydrophilic statins—rosuvastatin (Crestor) and pravastatin (Pravachol)—have to be actively transported, and cause fewer muscle aches. If you haven't tried rosuvastatin or pravastatin, ask your doctor to switch you to one or the other.

## 3. Take a Lower Dose

A little statin is better than none, so try taking the lowest dose of a hydrophilic statin once a week: For example, start with rosuvastatin 2.5 milligrams (mg) on Mondays. If you can tolerate it, add 2.5 mg on Thursdays. If that doesn't bother you, add a third day. An option is to stay on the twice-weekly schedule and raise the dose to 5 mg.

"By introducing statins slowly, 70% percent of 'statin intolerant' patients end up being able to take a statin: 60% of them can take it every day, and 10% can take it three times a week," says Dr. Cho.

## 4. Try a Different Option

If you are still unable to tolerate any statins at all, ask about switching to ezetimibe (Zetia<sup>®</sup>), which can lower LDL by 15%, or a PCSK9 inhibitor. There are two: alirocumab (Praluent<sup>®</sup>) and evolocumab (Repatha<sup>®</sup>). These powerful drugs can lower LDL to rock-bottom levels without triggering muscle pain.

The only disadvantage is price. PCSK9 inhibitors are expensive, and some patients have difficulty getting their prescription approved. That's why statins remain the more common choice for lowering low-density lipoprotein (LDL) cholesterol.

A word of warning: Never stop taking a statin without your doctor's permission. "It can greatly increase your chance of having a heart attack," says Dr. Cho.

## There's a Type of Cholesterol as Dangerous as LDL

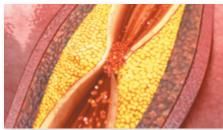
Fortunately, the first drug to treat it is in the pipeline.

o you know how much lipoprotein(a) is in your blood?

This form of cholesterol, widely known as Lp(a) and pronounced "L, P, little a," is a bad actor that greatly increases the risk of heart attack and stroke. Yet the public knows little about it, and doctors don't generally test for it, because there was no way to treat it.

"Lp(a) is a driver of atherosclerosis that has been completely untreatable by diet or medications," says Cleveland Clinic cardiologist Steven Nissen, MD. "Many of these people have heart attacks or strokes in their 40s or 50s, even in the absence of other risk factors."

A well-known victim is celebrity trainer and fitness guru Bob Harper, who survived a major heart attack and cardiac arrest at age 42. His only risk factor—discovered after the event—was elevated Lp(a).



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Lp(a) is formed when a molecule of low-density lipoprotein (LDL) cholesterol binds to apolipoprotein(a). The resulting protein increases the amount of cholesterol the body deposits in arteries and makes blood more clottable.

## **Altering Your Genes**

The amount of Lp(a) you have is genetically detemined. Now there's hope for the 1.4 billion people in the world who inherit high Lp(a) levels. Ionis Pharmaceuticals, a small U.S. company, has developed a drug that blocks the genetic process leading to the creation of this destructive lipoprotein. In early clinical trials, the drug—known only as TQJ230 reduced Lp(a) levels by 80% or more.

## Test Your Lp(a) Level If:

- You were diagnosed with cardiovascular disease at an early age (before age 50 if you're a man or 60 if you're a woman
- You have a strong family history of early-onset cardiovascular disease
- A parent, sibling or grandparent had a heart attack or stroke at an early age.
- "If you are among the 20% of the population with high Lp(a), work with your cardiologist to aggressively manage your risk factors in order to prevent a potentially fatal cardiovascular event," says Dr. Nissen.

A global phase 3 clinical trial of TQJ230 has just started under Dr. Nissen's leadership in partnership with Novartis, the company developing this drug with Ionis. The trial will enroll about 8,000 participants with dangerously high Lp(a) levels (70 milligrams per deciliter or more). The goal is to find whether significantly lowering Lp(a) levels protects patients from heart attack and stroke.

"We think it will," says Dr. Nissen. Results are expected in 2024.

## **Coming Soon: An LDL-Lowering Drug with Few Side Effects**

Bempedoic acid may be an alternative for patients who can't take statins.

ny day now the U.S. Food & Drug Administration is likely to approve a novel cholesterol-lowering agent called bempedoic acid. It is as effective as statins in reducing LDL cholesterol and C-reactive protein (CRP), a marker of inflammation associated with increased risk of heart attack and stroke. However, bempedoic acid does not cause the muscle-related side effects that lead some people to stop taking statins.

"This makes it a potentially

valuable drug for people who are statin-intolerant," says Cleveland Clinic cardiologist and researcher Steven Nissen, MD, a world expert on cholesterol-lowering medications.

## **What Studies Show**

The safety, tolerability and effectiveness of this new cholesterol-lowering agent have been extensively tested in patients with elevated cholesterol on maximally tolerated statin therapy with or without ezetimibe, including those who are statin intolerant. Overall, bempedoic acid lowered LDL cholesterol 14% to 24% when used alone and more than 40% when combined with ezetimibe. Only minor side effects were reported.

## What Remains to Be Seen

FDA approval of bempedoic acid will be based on its ability to lower LDL: Whether it lowers the risk of cardiovascular events remains to be seen.

"We are optimistic that it will also lower morbidity and mortality," says Dr. Nissen.

To answer these questions, Dr. Nissen is leading an international trial of 14,000 patients that compares outcomes with bempedoic acid versus placebo in statin-intolerant patients. The results will be available in three to four years.

# How to Find a Good Specialist

## Let's talk about the best ways to determine the quality of a doctor.

n 2019, an investigative journalist named Marshall Allen received a phone call informing him that his peers had nominated him for a "top doctor" award, and that his patients had reinforced his qualification with good reviews. The caller added that he could purchase a plaque for \$289 to commemorate this achievement

and, more importantly, communicate it to his patients.

But Allen is not a physician. He writes about health care for an online magazine called *ProPublica*—a fact he made abundantly clear to his caller. To his surprise, she told him he still qualified for the award and could have the plaque for only \$99.



## Resource for Evaluating Heart Surgeons

To help the public better understand the quality of heart surgery, the Society of Thoracic Surgeons (STS) rates hospitals and surgical groups in five categories: coronary artery bypass grafting (CABG), aortic valve replacement (AVR), AVR plus CABG, mitral valve repair and replacement, and mitral valve repair/replacement plus CABG (see publicreporting.sts.org).

A composite score is calculated from 11 quality measures, which include absence of mortality within 30 days, absence of major adverse events, use of internal mammary artery as a bypass graft (the gold standard in CABG) and receipt of recommended pre-and postoperative medications. "These are the most frequently performed heart operations, but that does not mean every surgeon performs them often," Dr. Svensson explains. In fact, the average surgeon does only eight AVRs a year, and the average hospital does 23.

Cleveland Clinic is only one of two hospitals out of all 1,012 in the STS Adult Cardiac Surgery database to achieve the top rating in all five categories.

So Allen bought the plaque naming him a "top doctor." No patient will ever see it, because he doesn't have any. But the incident is a reminder that in our eagerness to find a good specialist, we may accept what we are told about a physician as the truth. We want to learn who is "the best" without doing our homework-starting with what criteria were used, or if any criteria were used at all.

"Many patients assume that the awards are backed by rigorous vetting and standards to ensure only the 'best' doctors are recognized," said Allen.

"Medicine is complex, and there's no simple way of saying some doctors are better than others. Truly assessing the performance of doctors, from their diagnostic or surgical outcomes to the satisfaction of their patients, is challenging work."

Challenging, but not impossible.

## **Build on the Basics**

Let's be clear: Allen's "surreal" experience does not mean all listings of "best" or "top" doctors are created with such low standards. But when you are looking for a specialist, it's helpful to know what criteria you should use to determine quality, and which sources you can trust.

Thanks to the Internet, it's relatively easy to look up a doctor's training, education, licenses and disciplinary record. This information can confirm that a physician has graduated from medical school, completed an accredited residency in the specialty in which he or she is practicing and has a license to practice in your state.

It will also inform you whether a physician has ever been disciplined for unethical behavior—a good indication he or she is one you should avoid. Beyond these basics, however, there are other factors to weigh when evaluating quality.

"Hospitals and doctors vary in quality due to differences in experience, outcomes, training, services, research and innovation," says Lars Svensson, MD, PhD, Chairman of Cleveland Clinic's Heart & Vascular Institute.

## **Experience Matters**

A specialist should have experience caring for patients with your specific medical condition. The more experience, the better.

"Because medical knowledge changes so rapidly, it's very difficult for specialists in fields such as cardiovascular medicine to excel in every aspect. That's why many subspecialize," says Dr. Svensson. "By going to a subspecialist, you are more likely to receive an accurate diagnosis, be treated according to the latest evidence-based guidelines and have the outcome you expect."

This means if you have a heart condition, you might benefit from seeing a cardiologist who subspecializes in clinical cardiology, invasive and interventional cardiology, preventive cardiology, cardiovascular imaging, electrophysiology and pacing, or heart failure and transplantation.



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Cardiology, a specialty of internal medicine, has become so complex that many physicians choose to subspecialize by undergoing fellowship training. Depending on the area of expertise they choose, this requires spending several more years learning what they need to know to treat patients with specific heart conditions.

### **Expect Success**

When interventional or surgical treatment is needed, the more experience a medical professional has, the greater the likelihood the procedure or surgery will go well.

"The more operations a surgeon does, the greater the likelihood the right operation will be chosen and done correctly, and that the outcome will be successful," says Dr. Svensson.

It's particularly important if you have a complex medical condition, or your risk is elevated due to advanced age, medical history or the presence of other medical issues.

Heart surgeons have varying degrees of experience with valve repair or replacement, surgery on the aorta or mechanical assist devices or heart transplantation, in addition to coronary artery bypass grafting (CABG).

"Each of these fields requires discernment, which comes with experience," says Dr. Svensson. "No procedure is ever routine, and there is no such thing as a typical patient."

## **Why Research Matters**

Top specialists are driven to find better ways to treat patients. They are open to innovation and like to discuss new ideas with colleagues. They push the boundaries of medical knowledge by participating in clinical trials and publishing the outcomes, whether they are favorable or unfavorable. They share what they learn with other physicians.

The need to conduct research and education in addition to providing patient care is the primary reason top specialists tend to be found in academic medical centers.

One way to assess a doctor's knowledge on a particular topic, his or her success with a specific procedure or its risks is to enter the doctor's last name and initials into www.ncbi.nlm. nih.gov/pubmed and do a search.

"If you don't find any publications, the doctor may not be the expert you are seeking," says Dr. Svensson.

## What Do Colleagues Say?

Knowing where a physician would choose to go for his or her own medical care is an excellent indicator of quality, particularly when the information is provided anonymously.

This is the technique used by

U.S. News & World Report (USNWR) for their "Best Hospitals in America" issue. The results are a goldmine for patients looking for a cardiologist, cardiac surgeon or other specialist.

In 2018, for example, the magazine asked 900,000 practicing physicians where they would go for personal care in 12 specialties. They received 30,000 responses. These expert opinions were merged with data on 30-day survival rates, patient safety, patient experience, availability of specialty staff, and other quality criteria from 5,000 qualifying medical centers. (USNWR's 136-page methodology can be accessed on https://bit.ly/2JsD5uU).

Their criteria were so strict, and their assessment so thorough, that only 165 hospitals in the country ranked in one or more of the 12 specialties.

"It is very difficult to get a true assessment of the best hospitals in the U.S. The USNWR does the most convincing assessment," says Dr. Svensson.



Photographer: Stephen Travarca | The Cleveland Clinic Center for Medical Art & Photography © 2013 All Rights Reserv

# Why Cleveland Clinic Consistently Rates #1 in the Nation in Heart Care

Since 1995, Cleveland Clinic has been named Number One in cardiology and cardiac surgery in *U.S. News & World Report's* "Best Hospitals in America" issue (see https://bit.ly/2PpJTNB.

What makes Cleveland Clinic heart care stand out? Learn for yourself by visiting https://cle.clinic/2qMsqoc. Here you will find the number of patients seen in every subspecialty of the Heart & Vascular Institute, the number of specific procedures performed and their outcomes. You will also see how Cleveland Clinic's results compare with national averages.

"Sharing outcomes is important, because we have a moral responsibility to let patients know what we are able to do for them before they decide to put their trust in us," says Dr. Svensson.

## ASK THE DOCTORS



Heart Advisor Editor-in-Chief Leslie Cho, MD, Co-section head of Preventive Cardiology and Rehabilitation at Cleveland Clinic



Michael Rocco, MD, Cleveland Clinic cardiologist

## IN COMING ISSUES

# New thinking about breakfast.

How heart disease is connected to dementia.

Should you enroll in a clinical trial?

How to protect your heart during elective surgery.

## I recently had valve surgery, and my doctor recommended cardiac rehab. Isn't that just for people who had a heart attack or bypass surgery?

In addition to coronary artery disease and diagnoses such as heart attack, angina, bypass surgery and angioplasty or stenting, other indications for cardiac rehab (CR) include heart valve repair or replacement, heart transplantation, peripheral arterial disease and heart failure with reduced heart muscle function. Medicare and most insurers typically reimburse for the above conditions.

People of all ages can benefit from CR. Rehab programs individualize treatment plans, which include not only exercise, but also counseling for reducing cardiac risk factors (high blood pressure, high cholesterol, smoking), education on medications and nutrition, psychosocial assessment and emotional support. Research has found that CR can reduce your risk of death from heart disease and future heart problems. Other benefits include improved nutrition and weight management, gains in strength, lower stress levels, improved emotional health, better pain management and earlier return to work. Together, these factors result in improvements in overall health and quality of life.

The risks of cardiac rehab are very low. Contraindications are related to the exercise component and include unstable angina, decompensated heart failure, active infections or inflammation, recent blood clots and severe aortic valve stenosis. The American Heart Association and American College of Cardiology strongly recommend CR.

Despite these recommendations, insurance coverage and the proven benefits, only about 20% of the more than 1 million eligible U.S. patients each year participate. In a recent study of open-heart valve surgery patients, less than half enrolled in CR. Those who did had a 34% and 61% relative decrease in 1-year hospitalization and mortality, respectively. If your doctor feels that you are a good candidate, I strongly advise you to participate: You have nothing to lose and much to gain.

## I have diabetes and a BMI of 36. Will diabetes medications help me lose weight?

If you have diabetes, dropping pounds is one of the best things you can do. Weight loss of 5% to 10% will improve your health by lowering blood sugar, blood pressure and triglycerides, while helping your body's own insulin work better. However, weight loss remains a struggle for many individuals with diabetes.

Some diabetes drugs, including the thiazolidinediones, sulfonylureas and insulin, are associated with weight gain. Glucophage (Metformin<sup>®</sup>) and the DPP-4 inhibitors sitagliptin (Januvia<sup>®</sup>) and saxagliptin (Onglyza<sup>®</sup>)—may promote mild weight reduction, but are generally weight-neutral.

However, the GLP-1 agonists—liraglutide (Victoza<sup>®</sup>) and semaglutide (Ozempic<sup>®</sup>)—and SGLT2 inhibitors—empagliflozin (Jardiance<sup>®</sup>), canagliflozin (Invokana<sup>®</sup>) and dapagliflozin (Farxiga<sup>®</sup>)—are associated with weight loss. GLP-1 agonists decrease appetite and slow the movement of food through the stomach, increasing a sensation of fullness. These drugs may lead to six to nine pounds of weight loss when combined with lifestyle changes. Weight loss with SGLT2 inhibitors is mild and appears to be an indirect effect of kidney excretion of glucose. It can be limited by increasing food intake, but may improve with attention to calorie counting.

These are modest weight reductions. The meds don't replace physical activity and healthy eating habits, but work best when combined with them. Some members of these two new classes of drugs have also been shown to reduce the risk of cardiovas-cular events and heart failure complications, offering additional benefits in people with diabetes and cardiovascular disease.

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