HALF OF HEART FAILURE LOOKS NORMAL

THE STAIRS TELL YOU BEFORE THE TESTS DO

Your ejection fraction comes back normal and somebody tells you your heart is fine. **It is squeezing fine. The problem is what happens between the beats.**

BY DR. DAMIAN RASCH, D.O.
BOARD-CERTIFIED
INVASIVE CARDIOLOGIST

When I tell patients they have heart failure, I can see the concern arrive in their eyes. The words sound like the heart is about to stop. Heart failure with preserved ejection fraction, HFpEF for short, is something we can manage together.

Your heart muscle still squeezes normally. It has trouble relaxing and filling with blood between beats. Think of a balloon that has gone stiff and is harder to inflate. These pages are the printable version of my article on it. Bring them to your next visit.

50%

OR HIGHER, AND THAT IS NORMAL

The share of blood your heart pushes out with each beat. In HFpEF it is fine.

HALF

OF THE HEART FAILURE I SEE

HFpEF is about half of all heart failure cases in my San Diego practice.

90%

HAVE HIGH BLOOD PRESSURE

About nine in ten of my HFpEF patients. Years of pressure stiffen the muscle.

What is actually going wrong in there?

TWO JOBS. ONE OF THEM SLIPPING

THE TWO HALVES OF A BEAT. Your heart has four chambers. The main pumping chamber, the left ventricle, has to do two things well. It has to squeeze hard enough to push blood out, which we call systole, and it has to relax completely so blood can flow back in, which we call diastole. In HFpEF the squeeze stays normal. The relaxing half is where it breaks down.

WHAT A STIFF CHAMBER DOES. A stiffer left ventricle cannot fill as easily as it should. Pressure backs up behind it, all the way to your lungs, and that backup is the shortness of breath you have been feeling. The stiffening usually comes on slowly, from changes in the muscle itself. Tiny fibers called collagen build up between the muscle cells and the whole chamber loses its give.

WHY THE REPORT SAYS YOU ARE FINE. Ejection fraction only measures the squeeze. It cannot see the fill. That one number is why people with HFpEF get told their heart is fine, sometimes by family and sometimes by a clinician, while the shortness of breath goes unexplained.

THE BALLOON THAT WENT STIFF

A picture worth keeping in your head

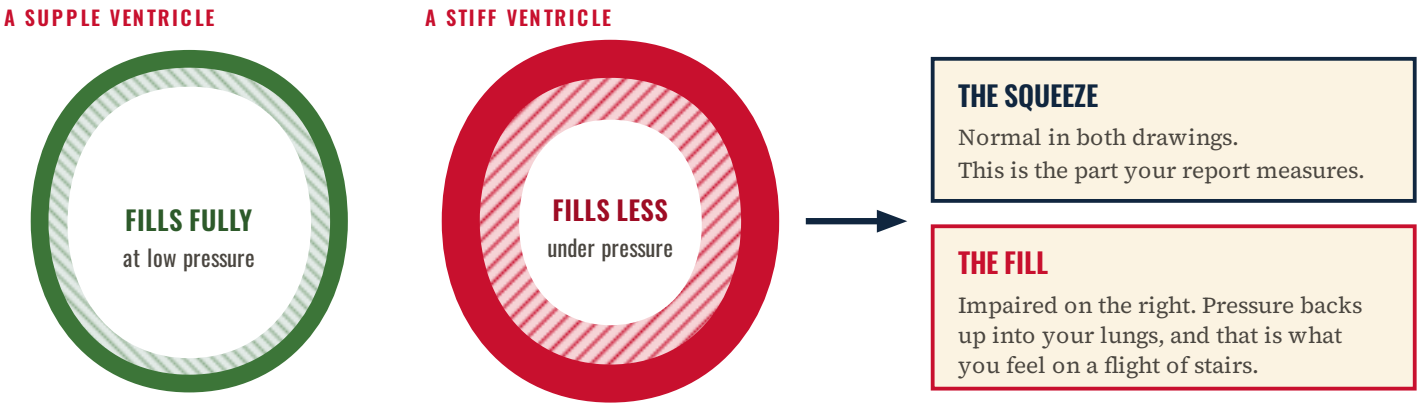
A healthy ventricle is a soft balloon. It fills easily and empties well.

A stiff ventricle is a balloon left in a drawer for years. Squeezing the air back out still works. Getting air back in takes real pressure.

That pressure is the whole problem. It has to come from somewhere, and it comes from the lungs behind it.

FIGURE 1

THE HALF OF THE HEARTBEAT NOBODY MEASURES



A schematic of the two halves of a heartbeat, drawn to show a pattern. It is not an anatomical drawing or a measurement.

Why did my heart get stiff in the first place?

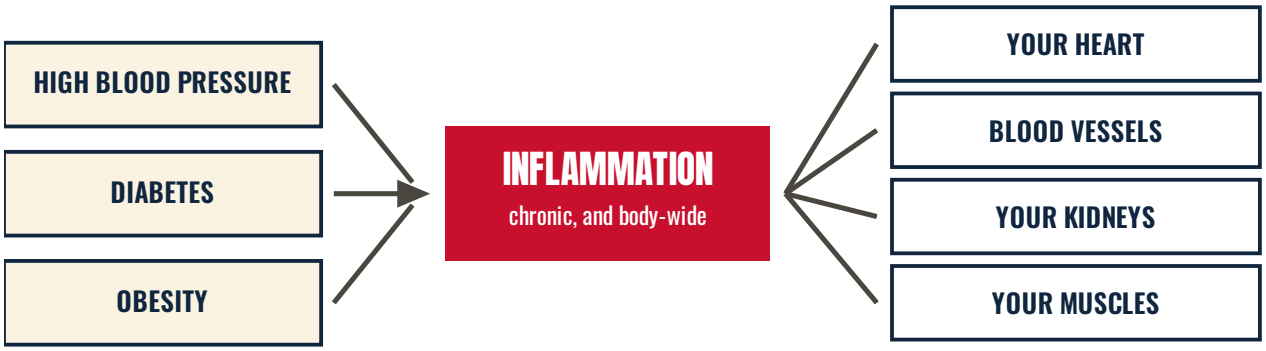
PRESSURE, SUGAR, WEIGHT, TIME

Several things feed this process, and most of my patients have more than one of them. High blood pressure, carried quietly for years, forces your heart to work harder and leads to thickening and stiffening of the muscle. Diabetes damages the small blood vessels that nourish that muscle. Obesity and body-wide inflammation make all of it worse.

HFpEF is different from the kind of heart failure caused by blocked arteries. It usually comes from that combination of conditions grinding away together over years, which is also why treating it means treating all of them rather than hunting for one blockage to fix.

FIGURE 2

WHY YOU FEEL IT EVERYWHERE, NOT JUST IN YOUR CHEST



THE RESULT

TIRED AND WEAK BEYOND WHAT THE HEART ALONE EXPLAINS

A schematic of the inflammation pathway described in the article, drawn to show a pattern rather than measured values.

COLLAGEN IS THE REASON

What is physically different about a stiff heart

Tiny fibers called collagen build up between the muscle cells of your left ventricle. Muscle that used to give now resists. The chamber holds its shape when it should be opening.

Age does some of this on its own. The proteins that give heart muscle its structure change over the years and become less flexible. Add high blood pressure and diabetes on top, and the risk climbs a long way.

Why do I only notice it on the stairs?

YOUR BODY ADAPTED, THEN IT RAN OUT OF ROOM

ROUTINE ACTIVITY IS WHERE A STIFF VENTRICLE SHOWS ITSELF

These changes come on so gradually that your body quietly adjusts around them. You take the hill slower. You do the groceries in two trips. Nothing announces itself, because nothing changed overnight.

Symptoms usually appear once the stiffness gets severe enough to limit filling during physical activity, when your heart has to move more blood to keep up with what you are asking of it. At rest there is time to fill. On a flight of stairs there is not.

The tiredness is its own thing. Inflammation reaches your blood vessels, your kidneys and your skeletal muscles, so you can feel weak in a way the heart problem alone would not explain.

Some decline in exercise capacity comes with age. Real shortness of breath doing routine things, climbing a flight of stairs or walking a few blocks, is not part of getting older, and it should be looked at.

At rest your heart has time to fill. On a flight of stairs it does not, and that is the moment a stiff ventricle stops keeping up.

DR. DAMIAN RASCH, D.O.

What does my echo report actually say?

READING YOUR ECHO OUT LOUD

THE TEST ITSELF. An echocardiogram uses sound waves to make moving pictures of your heart. It gives me your ejection fraction, the share of blood your heart pushes out with each beat. In HFpEF that number is 50 percent or higher, which is to say normal.

THE LINE THAT SAYS MORE. I look harder at how your heart fills between beats, and the measure for that is the E over e prime ratio. At 15 or higher it usually means the pressure inside your heart is up, and that is one of the findings I care about most in HFpEF.

THE CHAMBER BEHIND IT. I also look at your left atrium, the chamber that takes blood back from your lungs. When it has enlarged, it has usually been pushing hard for a long time against a stiff ventricle in front of it. A big left atrium is a record of pressure, kept in muscle.

THE BLOOD TEST, AND ITS CATCHES

BNP and NT-proBNP are helpful, not perfect

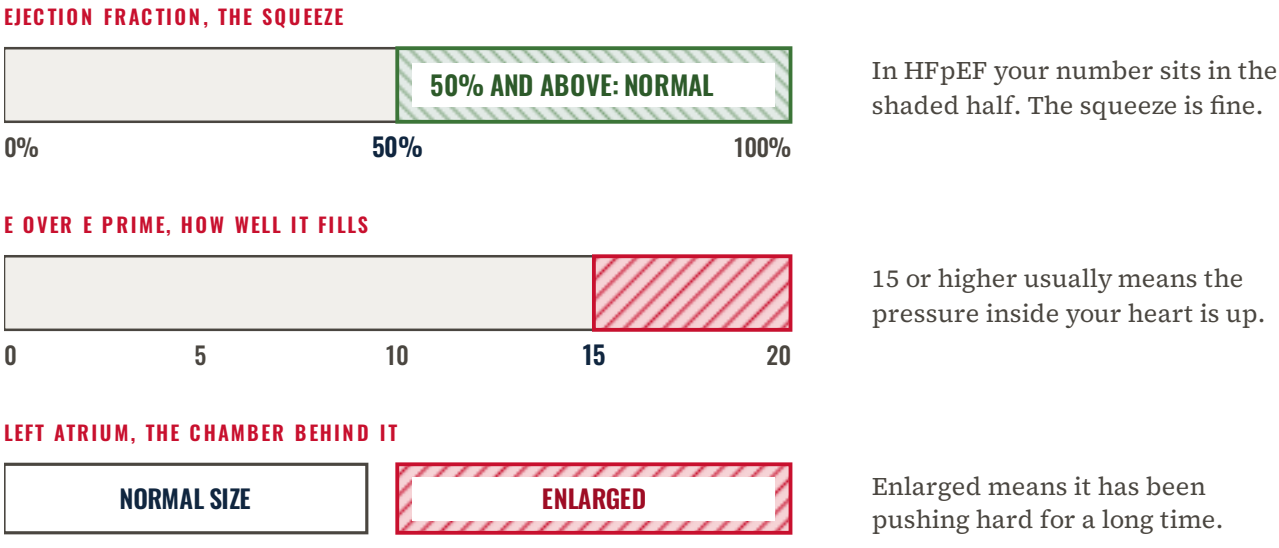
Natriuretic peptides are hormones your heart releases when it is under strain, and the blood test for them supports the diagnosis.

If you carry extra weight the level can read lower than expected even when you do have heart failure.

If you have kidney trouble or atrial fibrillation, the irregular rhythm, the level can read high for reasons that have nothing to do with heart failure.

FIGURE 3

THREE LINES ON THE REPORT, IN PLAIN WORDS



A schematic of the report lines discussed in the article. The positions are illustrative; only the 50 percent and the value of 15 are thresholds.

My report says diastolic dysfunction. Do I have heart failure?

STIFFNESS IS NOT THE SAME AS SICKNESS

Finding diastolic dysfunction on your echo does not by itself mean you have HFpEF. It means your heart muscle is not relaxing normally between beats. Plenty of people carry that finding and never develop heart failure. It is wear and tear showing up, the way gray hair and reading glasses show up.

For a real HFpEF diagnosis I need both the heart changes and the symptoms, and I need those symptoms to be coming from those changes. That decides whether you go home on heart failure medication or go home working on your blood pressure.

BOTH READINGS DO HARM

Being told you have heart failure when you do not, and being told your breathlessness has nothing to do with your heart when it has everything to do with it

FIGURE 4

IT TAKES BOTH

	NO SYMPTOMS	SYMPTOMS
ECHO NORMAL	**NOTHING TO TREAT** Keep the blood pressure, the weight and the blood sugar where they belong, and we work on preventing progression.	**LOOK ELSEWHERE** Breathlessness with a clean echo points me toward another cause for your symptoms.
ECHO STIFF	**DIASTOLIC DYSFUNCTION** Common with age, with pressure and with diabetes. Many people have it and feel fine. The work here is preventing progression.	**HFpEF** The heart changes and the symptoms together, with the symptoms coming from them. Treatment starts here.

WHEN THE FIRST TESTS DO NOT SETTLE IT

1. **A SCORING SYSTEM**
   The H2FPEF and HFA-PEFF scores combine your age, body mass index, atrial fibrillation, blood pressure medications, echo findings and labs to estimate how likely HFpEF is.

2. **AN EXERCISE TEST**
   A cardiopulmonary exercise test walks you on a treadmill while we watch rhythm, blood pressure and breathing. Some hearts only show their limits under load.

3. **A PRESSURE MEASUREMENT**
   Right heart catheterization threads a thin tube through a vein to measure filling pressures directly. It sounds worse than it is, and it is the most accurate answer we have.

Why me?

THE COMPANY HFPEF KEEPS

In my practice the patterns are steady. The typical patient is a woman over 65 carrying several other conditions at once. Almost nobody arrives with only one of the things on this page.

1

AGE

Heart muscle stiffens on its own over the years. The proteins that give it structure change and lose their flexibility.

2

BEING A WOMAN AFTER MENOPAUSE

Estrogen seems to help keep blood vessels flexible and to guard against inflammation. When it drops away, the risk rises.

3

HIGH BLOOD PRESSURE

Present in about 90 percent of my HFpEF patients. Years of it thicken and stiffen the muscle, and some of that persists after the pressure comes down.

4

EXTRA WEIGHT

More blood for the heart to move, more inflammation, and fat tissue that makes substances of its own. Losing even a modest amount helps symptoms.

5

DIABETES

It damages the small vessels feeding your heart muscle and adds to the inflammation and the stiffening.

6

ATRIAL FIBRILLATION

Cause and consequence at the same time. The irregular rhythm makes filling harder, and a stiff heart makes the rhythm more likely.

7

SLEEP APNEA

Repeated drops in oxygen overnight strain the whole cardiovascular system. Loud snoring, or a partner who sees you stop breathing, is worth telling me about.

HFpEF is rarely one problem. It is pressure, weight, blood sugar and years, working on the same muscle at the same time.

DR. DAMIAN RASCH, D.O.

TWO KINDS OF HEART FAILURE, TWO DIFFERENT PATIENTS

Same words on the chart, different problem underneath

HFpEF. A woman over 65 with a stack of other conditions. The squeeze is normal and the filling is not. It comes from pressure, sugar, weight and years, working together.

The other main type. Blocked arteries are the usual culprit, and the patients are often younger men. The pumping itself has weakened.

So what actually helps?

WHAT MOVES THE NEEDLE

20%

FEWER HOSPITAL STAYS AND CARDIOVASCULAR DEATHS

What the large trials of SGLT2 inhibitors found, in patients with and without diabetes.

THE ONE REAL ADVANCE. SGLT2 inhibitors, dapagliflozin and empagliflozin, came out of diabetes care and turned out to help heart failure patients whether or not they have diabetes. They help your kidneys shed extra salt and water, they lower inflammation, and they improve how your heart uses energy. I now prescribe one for most of my HFpEF patients unless there is a specific reason not to.

FLUID, PRESSURE, RHYTHM, SUGAR. Diuretics pull off the fluid that backs into your lungs and legs, and they are still how we make you comfortable. Blood pressure control slows HFpEF more than any other single step, and I aim below 130 over 80 in most patients. If you have atrial fibrillation we deal with the rhythm and with stroke risk. If you have diabetes, some of those medications carry heart benefits of their own.

How fast things change. If you are more short of breath or your legs are swelling, we may move your diuretic dose within days. Everything else moves slowly on purpose, so we can see the full effect and watch for side effects.

Why so many pills. Patients tell me it feels like too many medications. Getting your blood pressure where it belongs is one of the highest-yield things we do to keep HFpEF from getting worse.

FIGURE 5

WHAT EACH TREATMENT IS ACTUALLY DOING

SGLT2 INHIBITOR dapagliflozin, empagliflozin	Kidneys shed salt and water Inflammation comes down	The heart uses energy better **About 20% fewer events**
DIURETIC the water pill	Pulls off the fluid backed up in your lungs and your legs	Breathing and swelling improve. **Too much makes you feel worse.**
BLOOD PRESSURE below 130 over 80	Takes the load off a muscle that has carried it for years	Slows HFpEF more than any **other single step.**

A summary of the mechanisms described in the article. The 20 percent figure is the reduction in hospitalizations and cardiovascular deaths reported in the large SGLT2 inhibitor trials.

When is a treatment the wrong move?

GOOD MEDICINE, WRONG PATIENT

Knowing when to leave something alone is part of the job. Each line below is a real situation where a treatment that helps most people with HFpEF is the wrong choice for one of them.

Severe kidney disease with very low filtration rates, or a history of diabetic ketoacidosis, or type 1 diabetes on insulin	→ **SGLT2 inhibitors may not work and can do harm. This one needs a careful conversation before it starts.**
Blood pressure that runs low, or severe kidney disease	→ **Hard diuresis can worsen kidney function and make you feel worse. A little ankle swelling can be the better trade.**
Clear symptoms, typical risk factors, and a characteristic echo	→ **Cardiac catheterization for diagnosis adds risk without changing the plan. Most HFpEF never needs it.**
Very thick heart muscle, the condition called hypertrophic cardiomyopathy	→ **Some blood pressure medications reduce filling further and can make you feel worse. Your exact heart problem has to be pinned down first.**
Unstable symptoms, or breathlessness at rest	→ **Exercise stress testing waits. Pushing somebody who is already struggling with minimal activity is not safe.**
Older, or many years of high blood pressure behind you	→ **Driving the pressure down too hard can make HFpEF symptoms worse. Good control, not the lowest possible number.**
Frail, or already losing muscle	→ **Rapid weight loss and extreme calorie restriction cost you muscle and leave you more tired, not less.**

Some patients get set on eliminating every last bit of fluid. A small amount of swelling can be the right answer if chasing it causes other problems.

DR. DAMIAN RASCH, D.O.

What do people keep getting wrong about this?

EIGHT THINGS I HEAR ALL THE TIME

"IT IS NOT REAL HEART FAILURE, MY NUMBER IS NORMAL." Family members say it. Some clinicians say it. HFpEF is absolutely real heart failure, your symptoms are just as valid, and it can be just as serious. What differs is which part of the heart is failing you.

"MY ECHO SAYS DIASTOLIC DYSFUNCTION, SO I HAVE HEART FAILURE." Not on its own. Plenty of people carry that finding and feel well. Turn back to page 6 for the picture that sorts this out.

"FAILURE MEANS MY HEART IS ABOUT TO STOP." The word is a bad one. What it describes is a heart not working as efficiently as it should. Many of my patients live normal lifespans with treatment. It is a chronic condition to manage, like diabetes or high blood pressure.

"MY TESTS LOOK NORMAL, SO I CAN SKIP THE MEDICATION." This one gets people into trouble. The medications and the changes I ask for are based on proven benefit in people with HFpEF, whatever the individual numbers look like.

"THIS IS AN OLD PERSON'S DISEASE." It gets more common with age. I have also diagnosed it in patients in their 50s and their 40s, usually with diabetes, obesity or blood pressure that went uncontrolled for years.

"THERE IS NOTHING TO BE DONE FOR IT." We have fewer medications proven for HFpEF than for the other type. We can still improve how you feel and how you live. The work is addressing every contributing factor rather than waiting for one pill to fix it.

"GETTING WINDED IS JUST GETTING OLDER." Some decline in exercise capacity comes with age. Serious breathlessness climbing a flight of stairs or walking a few blocks is not part of that, and it should be evaluated.

"MY SYMPTOMS HAVE NOTHING TO DO WITH MY HEART." Being told you "only" have diastolic dysfunction can send you home with breathlessness nobody is looking into. Both readings of that report do harm.

GRAY HAIR AND READING GLASSES

How to think about a report that says diastolic dysfunction

Diastolic dysfunction is wear and tear showing up on a report. It is common as we age and with high blood pressure or diabetes, and many people who have it feel perfectly well for the rest of their lives.

HFpEF is what we call it once that stiffness is actually making you sick. Stiffness in the muscle is one thing. Stiffness that puts you out of breath on the stairs is another.

What can this diagnosis not tell me?

WHAT THESE TESTS CANNOT SAY

Knowing the limits keeps you from worrying about things nobody can answer. Seven of them come up in clinic again and again.

1 HOW IT WILL GO FROM HERE

Some patients stay steady for years with few symptoms. Others slide slowly despite everything we do right. No test predicts which.

2 WHETHER IT WILL TURN INTO THE OTHER TYPE

Most people with HFpEF keep their ejection fraction. A few go on to develop reduced ejection fraction heart failure. That switch is uncommon and it is not predictable from current testing.

3 WHAT YOUR HEART DOES UNDER LOAD

Resting tests miss it. Your heart's ability to raise its output during exercise can be more limited than the numbers on the report suggest, which is why you may feel far worse than they look.

4 YOUR LIFE EXPECTANCY

HFpEF carries risks similar to other forms of heart failure. I cannot give any individual patient a number.

5 EXACTLY WHY YOU GOT IT

We can name your contributors. Why some people with the same conditions develop HFpEF and others never do is still not understood.

6 YOUR RIGHT AMOUNT OF EXERCISE

Exercise helps in HFpEF. The type, the intensity and the duration that suit you take individual assessment and some trial and error.

7 WHICH TREATMENT WILL WORK FOR YOU

Trials show average benefit. Some patients feel dramatically better on the same drug that does little for the person in the next chair.

BEFORE YOU START ANYTHING NEW

Four questions that set the right expectations

How long before I might notice a difference? Some medications work on symptoms. Others work on preventing trouble years out, and you will not feel them at all.

What side effects should I watch for, and how will we monitor for them?

What happens if this does not work? Knowing the next move takes the pressure off the current one.

What is this treatment for? Symptom relief and complication prevention are different goals, and they are judged differently.

Focus on what you can control instead of worrying about unknowable futures. Take the medications as prescribed, follow the dietary advice, stay as active as is safely possible, and keep the follow-up appointments. Those actions have proven benefit even though nobody can predict exactly how your condition will evolve.

How do I actually live with this?

DRIVE THE CAR YOU HAVE

THE ANALOGY I USE. Managing HFpEF is like learning to drive a car with different capabilities than the one you had. You cannot go as fast or take the hills as easily. You still get where you are going. It takes planning the trip differently and sometimes taking another route.

IMPROVEMENT COMES SLOWLY. There is no surgery here that fixes it on a Tuesday. Medications can take weeks to months to show what they do. Conditioning builds over time. Weight loss, if you need it, should be gradual. Patients get frustrated with this, and the frustration is fair.

COUNT THE SMALL WINS. One more block than last month. A night of sleep without waking up short of breath. Celebrate those instead of measuring every week against the way you used to feel.

WORK THE PART YOU CONTROL. Take the medications. Follow the diet. Stay as active as is safe for you. Keep the follow-up appointments. These have proven benefit, and they are yours. Stay connected to the people and the activities that give your life its shape. You may need to change how you take part. You rarely need to quit.

THE FEELINGS ARE PART OF THE DIAGNOSIS

What patients tell me in the weeks after

Relief and fear at once. An explanation at last, and then worry about what it means. Both are normal.

Grief. Mourning the energy and the spontaneity you had is reasonable. Let yourself feel it rather than pushing it down.

Family finding its footing. Some people get overprotective. Others cannot see why you have slowed. Talking plainly about what you can and cannot do helps, and it takes everyone time.

Feeling like a burden. You may need more help than you did. Relationships run both directions, and accepting help is not weakness.

Depression and anxiety. Common in heart failure, and they make the physical symptoms worse. If you are persistently sad, hopeless or anxious about your health, tell me. Treating it helps both sides.

WHO ELSE BELONGS ON YOUR TEAM

Primary care watches the blood pressure, blood sugar and kidney function between visits, and handles much of the day-to-day.

Endocrinology and I pick diabetes medications that help your heart as well as your sugar.

Sleep medicine for apnea. Treating it often improves heart function and energy noticeably.

Pulmonology when we have to separate lung breathlessness from heart breathlessness, or when you have both.

Nephrology if kidney function slips. Heart and kidneys pull on each other constantly.

Cardiac rehab builds an exercise program around your heart's limits rather than a general fitness plan.

Nutrition for weight and sodium, with strategies you can actually keep rather than a drastic restriction.

Mental health early on, when the adjustment is hardest and a counselor who knows chronic illness helps most.

THE BOTTOM LINE

REAL HEART FAILURE. REAL TREATMENT.

Your ejection fraction being normal does not mean your heart is fine. It means the squeeze is fine. HFpEF is about half of the heart failure I see, and it comes from blood pressure, weight, blood sugar, sleep apnea and years, stiffening a chamber until it cannot fill properly.

The treatment is real. An SGLT2 inhibitor for most patients, a diuretic for fluid, blood pressure below 130 over 80, the rhythm and the sleep apnea addressed. Most of my patients live full, active lives. This diagnosis starts a new chapter. It does not end your story.

IF YOU KEEP THREE THINGS FROM THESE PAGES

1. **A NORMAL EF DOES NOT CLEAR YOU**
   Ejection fraction measures the squeeze. Ask about the filling pressures and about your left atrium.

2. **STIFFNESS ALONE IS NOT THE DISEASE**
   Diastolic dysfunction on a report is common. HFpEF is that stiffness plus symptoms coming from it.

3. **TREAT ALL OF IT, NOT ONE OF IT**
   The pressure, the weight, the sugar, the rhythm and the sleep apnea are the treatment. There is no single pill.

WHAT IS COMING

Optimize what we have now, and know the pipeline is busy

GLP-1 medications are being studied in HFpEF specifically. So are treatments aimed at the inflammation behind it, devices that relieve pressure during fluid buildup, better imaging and blood markers, and work on the subtypes so treatment can be matched to your version. Gene and stem cell work is early.

TAKE THIS PAGE TO YOUR DOCTOR

Five things worth doing at every visit

Bring your symptom notes. Energy, breathing, what you managed this week. It tells me how well your treatments are working.

Write your questions down first. They evaporate in the exam room.

Bring somebody with you for the appointments that count.

Say what you actually cannot do. Cost, remembering pills, a change that will not fit your life. We can usually solve it if I know.

Ask for a second opinion on the big decisions. Most physicians, myself included, support it.

The full article is at **damianrasch.com/hfpef**.

Where the material in this guide came from

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ABOUT THE AUTHOR

Dr. Damian Rasch, D.O.

Board-certified invasive cardiologist practicing in Encinitas and La Jolla, California, with a clinical focus on preventive cardiology, advanced lipid management and cardiovascular imaging.

READ IT ONLINE

damianrasch.com/hfpef

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