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Concentric Remodeling

Thicker heart walls around a normal-size chamber, almost always from high blood pressure. Treated, it often reverses.

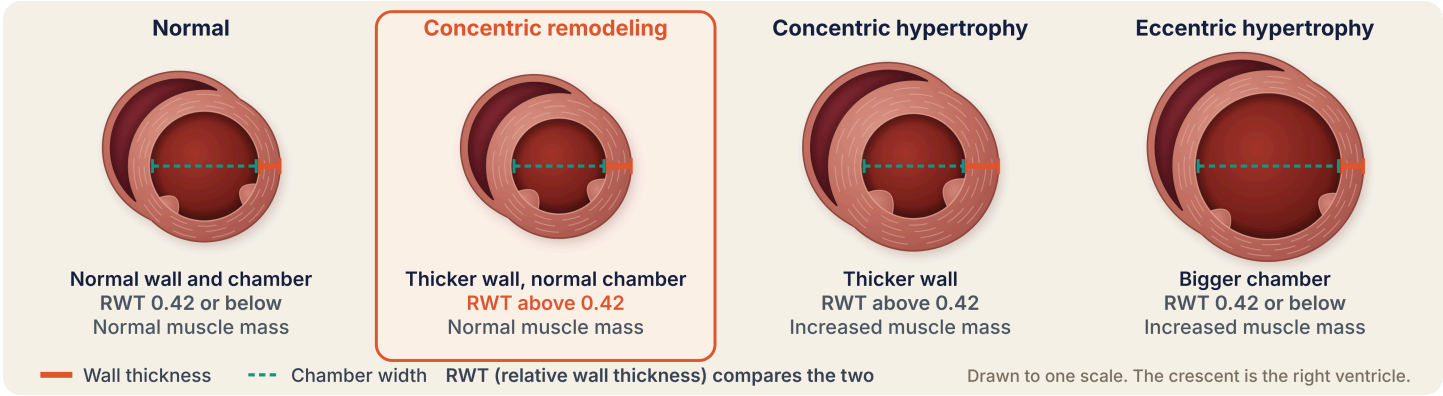
0.42
relative wall thickness above this is the threshold for concentric

130/80
is the blood pressure to stay below, for most adults

1–2 yrs
is the usual gap between follow-up echocardiograms

WHAT IT MEANS

Thicker walls, a normal-size chamber



Your echo report sorts the left ventricle, the main pumping chamber, into four patterns. **Relative wall thickness** compares the wall with the chamber's width, and above 0.42 counts as concentric. **Left ventricular mass index** is the total heart muscle for your body size, normal up to 95 g/m² in women and 115 in men. In concentric remodeling the walls are thicker but the total muscle is still normal.

WHY IT HAPPENS

A muscle pushing against pressure

High blood pressure

The most common cause by far. Each beat pushes harder, so the wall thickens while the chamber stays the same size.

Aortic stenosis

A narrowed valve makes the heart push harder. Once it's fixed, the walls usually regress over months.

Other loads

Obesity, diabetes, chronic kidney disease, untreated sleep apnea, stiffer arteries with age and a history of preeclampsia can also cause it.

The thicker, stiffer walls fill less well. Untreated, this can progress to concentric hypertrophy, atrial fibrillation and heart failure with preserved ejection fraction.

Caught early

Most people have no symptoms, and that silent stage is when treatment works best. With steady blood pressure control, the walls can thin back toward normal.

TURNING IT AROUND

Take the load off your heart

TREATMENT

aimed at what's loading the heart

Blood pressure	Below 130/80 (2025 AHA/ACC goal), with a top number below 120 encouraged at higher risk, judged on a week or more of home readings with a validated upper-arm cuff. If home and office readings disagree, the home readings usually win.
ARB or ACE inhibitor first	These two classes thin the wall more than other blood pressure drugs, partly by blocking angiotensin II, a hormone that drives thickening. In the LIFE trial, losartan led to more wall regression and fewer strokes than atenolol at the same blood pressure.
The first weeks	Blood pressure often drops within 2 to 4 weeks, and some people feel mildly lightheaded on standing at first. Kidney function and potassium are checked about 1 to 2 weeks after starting or raising the dose. ACE inhibitors cause a dry cough in 4 to 20 percent of people, and an ARB is the usual switch.
If one drug isn't enough	Next come amlodipine or a thiazide diuretic such as chlorthalidone, and spironolactone or eplerenone when pressure resists several drugs. Beta-blockers thin the wall less, so they aren't first choice for remodeling alone.
Other causes	Valve replacement, by surgery or TAVR, once aortic stenosis is severe. CPAP for sleep apnea. For diabetes, an A1c below 7 percent for most, and an SGLT2 inhibitor as a first-line medicine. Losing 10 percent of body weight or more often shows up as a better echo a year later.

EVERY DAY

habits add to the medicine

Food	A Mediterranean or DASH eating pattern with sodium below 2,300 milligrams a day.
Exercise	150 minutes a week of moderate exercise such as brisk walking, plus 2 days of resistance training. Most people with concentric remodeling can and should exercise.
Sleep, alcohol, smoking	Sleep 7 to 9 hours. Not drinking is best for blood pressure. If you drink, keep to 1 a day for women or 2 for men at most. If you smoke, quitting is the most beneficial change you can make for your heart.

WARNING SIGNS

Call the office the same day	New or worse shortness of breath, new leg or ankle swelling, weight gain of 3 pounds in a day or 5 in a week, new palpitations (especially if they last), new chest discomfort that reliably comes with exertion, or lightheadedness with exertion.
Call 911	Severe shortness of breath at rest, chest pain that's severe, lasts more than a few minutes or doesn't ease with rest, fainting or near-fainting without a clear reason, sudden breathlessness lying flat, pink or frothy sputum, or a sustained fast heartbeat at rest that you can't slow down.

IS IT HEART FAILURE?

No. Remodeling is a finding on a scan, and the pumping is preserved. It also differs from hypertrophic cardiomyopathy (HCM), a genetic disease. A septum much thicker than the back wall, or HCM in the family, calls for a closer look, often with a cardiac MRI.

READ THE FULL ARTICLE

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For education only, and not a substitute for advice from your own physician. Sources include Ganau and colleagues' 1992 study of heart geometry patterns, the 2015 ASE/EACVI chamber quantification recommendations, the LIFE trial (2002) and the 2025 AHA/ACC high blood pressure guideline.

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