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Mitral Regurgitation

A leak in the valve between the heart's two left chambers. How it's graded, how it's watched and when it should be fixed.

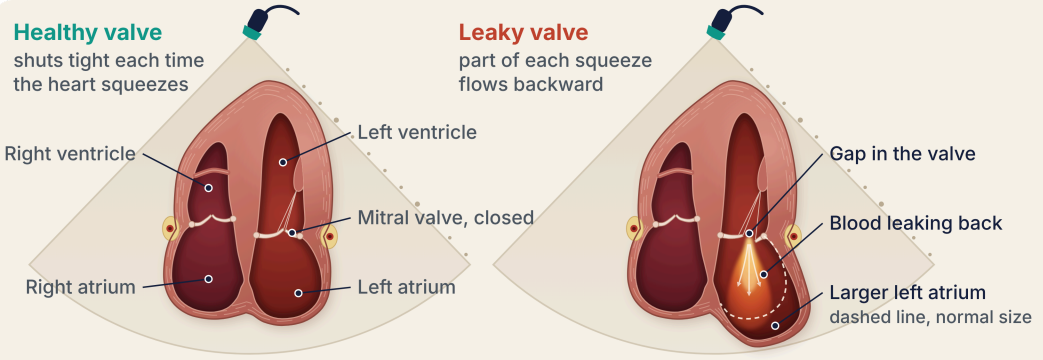
About 2%
of US adults have mitral valve prolapse, which is mostly harmless

Over 95%
of prolapse valves can be repaired at experienced surgical centers

60% or less
ejection fraction with a severe leak is a reason to fix it

WHAT IT IS

Blood leaks backward with every beat



Mitral regurgitation

The mitral valve doesn't close completely, so some blood leaks back into the left atrium with every beat.

Over time the left atrium and left ventricle stretch to hold it.

Shown as on the echo screen, with the tip of the heart at the top

The mitral valve is the one-way door between the left atrium, which collects blood from the lungs, and the left ventricle, the main pumping chamber. When it doesn't close completely, part of each beat leaks backward. The ventricle enlarges to keep up and the atrium stretches to hold the extra blood. Over years this can bring on shortness of breath, fatigue and atrial fibrillation (AFib), and eventually a weaker pump.

WHY IT LEAKS

A problem with the valve or with the heart around it

Primary: the valve itself
The flaps or the cords that hold them are damaged, most often from mitral valve prolapse, where floppy flaps bulge back into the atrium. Less often it's rheumatic disease, a valve infection or a heart attack. When it needs fixing, the valve itself is repaired or replaced.

Secondary: the heart around it
The valve looks normal, but an enlarged heart pulls it open, usually from heart failure or long-standing AFib. Treating the heart failure or AFib comes first. A valve procedure is added if the leak persists.

Trace is normal

A trace or trivial leak shows up on a sensitive echo in most healthy adults. It needs no treatment and rarely any monitoring. Mild and moderate leaks are usually just watched.

TRACKING AND TREATING IT

How severe it is and when to fix it

Trace	Mild	Moderate	Severe
Tiny, normal backflow	**Small leak**	**Larger, not yet severe**	**60 mL or more per beat**
No treatment needed	Echo every 3 to 5 years	Echo every 1 to 2 years	Valve team review, and an echo every 6 to 12 months if no symptoms

An echocardiogram, an ultrasound of the heart, grades the leak with three numbers. They are how much blood leaks back with each beat, the size of the leaking opening and the width of the jet where it's narrowest. A severe leak generally means 60 mL or more per beat, an opening of 0.40 cm² or more, or a jet 7 mm or wider. Your cardiologist weighs all three together. A TEE, a probe passed down the swallowing tube to sit right behind the heart, gives a closer look before a procedure.

WHEN A SEVERE VALVE LEAK SHOULD BE FIXED

primary leaks, any one can be enough

Symptoms	Shortness of breath, fatigue or trouble keeping up with activity.
Ejection fraction 60% or lower	Ejection fraction is the share of blood pumped out with each beat. A leaky valve makes the pump look stronger than it is, so 55% with a severe leak already means the muscle is weakening.
An enlarging ventricle	The left ventricle measures 40 mm or more across at the end of a squeeze.
New AFib or lung pressure	New atrial fibrillation, or blood pressure in the lungs above 50, makes repair a reasonable choice.

WAYS TO FIX IT

Surgical repair	The first choice for a damaged valve when it can be done. The surgeon reshapes the flaps, replaces torn cords and adds a support ring. Repairs can last well beyond 20 years. Expect three to five days in the hospital and four to eight weeks to full activity, usually with 3 months of a blood thinner afterward.
Valve replacement	For a valve too damaged to repair. A mechanical valve lasts indefinitely but needs warfarin for life. A tissue valve needs no long-term blood thinner but wears out over 10 to 20 years.
MitraClip	A clip delivered by catheter through a vein in the groin that holds the two flaps together at the leak. Most people go home the next day and are back to normal in one to two weeks. It usually reduces the leak by one or two grades without removing it. It's used for people at high surgical risk and selected people with secondary leaks.
Medicines	Heart failure medicines come first for secondary leaks, and in some people the leak shrinks as the heart recovers. They can't close a leak caused by a damaged valve.

WHAT HELPS WITH ANY GRADE

Call 911 for sudden, severe shortness of breath. Blood pressure is often kept below 130/80, because higher pressure drives more blood back through the leak. Treat AFib and heart failure if you have them. After any repair, clip or new valve, expect an echo every year for life.

READ THE FULL ARTICLE

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For education only, and not a substitute for advice from your own physician. Sources include the 2020 ACC/AHA valvular heart disease guideline, the 2021 ESC/EACTS valvular heart disease guidelines, the 2020 ACC MR pathway, the COAPT, MITRA-FR and CLASP IID trials and Rahimi et al. (PLoS Medicine 2017).

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