DAMIANRASCH.COM

DAMIAN RASCH, D.O.

ENCINITAS · LA JOLLA, CALIFORNIA



Bicuspid Aortic Valve

A valve born with two leaflets instead of three. What your echo numbers mean and when treatment comes up.

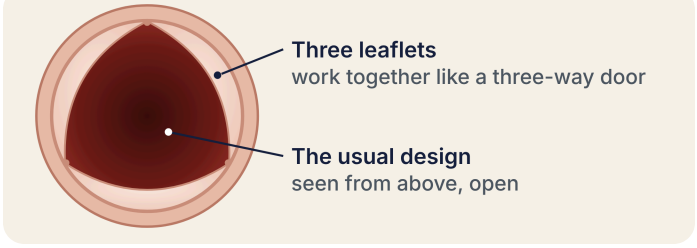
~1 in 100
people have one, the most common heart condition present from birth

About 10%
chance that a child of someone with a bicuspid valve has one too

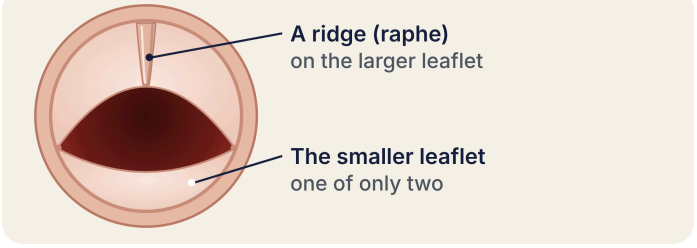
10 to 20 yrs
how long a biological replacement valve typically lasts

HOW IT'S DIFFERENT

Two leaflets doing the work of three



Usual valve: three leaflets



Bicuspid valve: two leaflets

The aortic valve sits between the heart's main pumping chamber and the body's largest artery, opening with each beat and snapping shut to stop backflow. With two leaflets doing the job of three, each one takes more stress with every heartbeat, and over the years that can change the valve. The flow through it can also be more turbulent, which can affect the wall of the aorta. Nothing you did caused it. It is simply how your heart formed before you were born.

WHAT TO WATCH FOR

Symptoms to report

Chest pain
One of the classic symptoms of a narrowing aortic valve.

Shortness of breath
With exertion. It often creeps up so slowly that you adapt without realizing it.

Dizziness or fainting
Symptoms mean the heart can no longer fully make up for the valve problem.

I often ask my patients to think about what they could do five years ago compared to now. Some people with severe valve problems feel fine, while others with milder ones have marked symptoms.

Call 911

Call 911 for fainting, chest pain, sudden severe shortness of breath, or sudden severe chest or back pain, which can be a tear in the aorta. Most valve problems develop slowly over years, which gives time to plan the best approach for you.

ECHO NUMBERS, TREATMENT TIMING AND OPTIONS ARE ON THE BACK

MONITORING AND TREATMENT

Reading your echo and deciding when to act

Normal	Mild	Moderate	Severe
Valve area 3 to 4 cm²	**1.5 to 2 cm²**	**1.0 to 1.5 cm²**	**Less than 1 cm²**
Blood speed under 2.5 m/s	May narrow about 0.1 cm² a year	Often progresses faster than mild	Speed typically over 4 m/s

An echocardiogram, an ultrasound of the heart, checks for narrowing (stenosis) and leaking (regurgitation). Mild leaking is common, moderate leaking requires closer monitoring and severe leaking typically needs treatment. An aortic root or ascending aorta over 4.0 to 4.5 cm generally warrants attention. With a normal or mildly affected valve, expect an echo every year or two.

WHEN TREATMENT IS USUALLY RECOMMENDED

Symptoms	Chest pain, shortness of breath or dizziness from the valve. Treatment is usually recommended regardless of age.
Severe narrowing or leaking	Without symptoms, a valve area under 1 cm² alone isn't enough. Treatment comes in with an ejection fraction under 50%, an abnormal exercise test or a blood speed of 5 m/s or more. A severe leak that enlarges the left ventricle often needs treatment to prevent permanent damage.
A widened aorta	At 5.5 cm or more, surgical repair is recommended regardless of valve function, to prevent a tear (dissection) or rupture. From 5.0 to 5.5 cm it is reasonable with a family history of dissection, growth over 0.5 cm a year or coarctation, and over 4.5 cm if the valve is being operated on.

TREATMENT OPTIONS

Surgical valve replacement	The gold standard for most patients. Mechanical valves can last a lifetime but need lifelong blood thinners. Biological valves typically last 10 to 20 years without long-term blood thinners. A markedly widened aorta is often partly replaced at the same time.
TAVR	A new valve guided in from a small incision, usually in the leg. A bicuspid valve's shape makes it harder to position, with a higher risk of leaking or stroke, so it is typically reserved for people who aren't good surgical candidates.
Valve repair	An option for some people with a leak and little narrowing. It keeps your own tissue but is technically challenging.

DAY TO DAY

Exercise	With a normal or mildly affected valve, there's typically no reason to restrict activity. Aerobic exercise is generally encouraged, and very intense weight lifting might be restricted if the aorta is widened.
Blood pressure	High blood pressure adds stress to the valve and the aorta. Controlling it may help protect your aorta.

WILL MY CHILDREN HAVE IT?

Most won't. The chance of passing it on is about 10%, so about 90% of children have a normal three-leaflet valve. Screening family members is still important, because early detection allows proper monitoring.

READ THE FULL ARTICLE

damianrasch.com/
bicuspid-aortic-valve

For education only, and not a substitute for advice from your own physician. Sources include the 2020 ACC/AHA valvular heart disease and 2022 ACC/AHA aortic disease guidelines, the 2021 international bicuspid valve consensus, the 2018 AATS consensus and Otto, Newby and Hillis (JAMA 2024).

DR. DAMIAN RASCH, D.O. · BOARD-CERTIFIED INVASIVE CARDIOLOGIST · ENCINITAS AND LA JOLLA, CA

MADE IN CALIFORNIA