CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

PATIENT INFORMATION

Suture Anchors and How Repairs Are Held to Bone

Ang pahinang ito ay isinalin ng makina at hindi pa nasusuri ng isang doktor. Ang **bersyong Ingles** ang siyang opisyal.

What is it

A suture anchor is a small device that holds stitches into bone. It solves a problem that stitches alone cannot: you can sew soft tissue to soft tissue, but you cannot sew soft tissue to bone. The anchor provides something for the stitches to hold on to.

Almost every repair in the shoulder uses them. When a rotator cuff tendon is reattached, when a torn labrum is put back onto the rim of the socket, when a ligament is reattached after a dislocation — in each case an anchor is placed into the bone and its stitches are passed through the tissue and tied down.

The anchor is not what holds the repair together in the long run. It holds the tissue still against the bone for the weeks it takes the two to knit together biologically. Once healing has happened, the join is living tissue, not hardware.

What it's made of

Anchors have been made from several different materials over the years, and the field has moved through them in a fairly clear sequence.

The earliest were **metal** — usually titanium. They held extremely well but stayed in the bone permanently and showed up on every X-ray afterwards, which made later imaging harder to interpret.

Bioabsorbable anchors followed, made from polymers designed to dissolve over a few years. The intention was sound, but some of the early materials broke down unpredictably and could leave a cavity in the bone or provoke inflammation.

PEEK — a strong medical-grade plastic — is widely used now. It does not dissolve, but it does not show up on X-ray and its stiffness is closer to bone than metal is.

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All-suture anchors are the newest, and are now in widespread use in the shoulder. There is no rigid body at all: a small sleeve of suture material is passed into a narrow hole and then tightened so that it bunches up and grips inside the bone. The hole needed is considerably smaller than for a solid anchor, so much less bone is removed.

The stitches themselves have changed as much as the anchors. Modern sutures are braided from an extremely strong polyethylene fibre, and are now stronger than the tendon they hold.

How your surgeon uses it

Anchors are used in several quite different shoulder operations, and what the surgeon is trying to achieve is not the same in each.

ROTATOR CUFF REPAIR

Here the job is to hold a broad, flat tendon down onto an equally broad area of bone — the footprint — so the two can knit together across that whole surface.

There is more than one reasonable way to arrange this, and practice differs between surgeons. A **single-row** repair places one line of anchors along the edge of the bone where the tendon should sit. A **double-row** or **suture-bridge** construct adds a second row further down the bone, so the stitches from the inner row are carried outwards and tensioned over the tendon, pressing a broad surface flat against the bone rather than holding it at a few points.

The second arrangement is thought to favour healing, and it does produce fewer retears on follow-up scans — but as the evidence below sets out, that advantage shows up more reliably on the scan than in how shoulders actually feel. Which is used depends on the size and shape of the tear, the quality of the bone and tendon, and the judgement and training of the individual surgeon.

LABRAL REPAIR

The labrum is a rim of cartilage around the edge of the shoulder socket. It is not being held onto a flat surface but reattached to the edge of one, so the anchors are smaller and are placed around the rim of the socket, usually three or four of them, with the stitches passed around the labrum to draw it back against the bone.

This is the repair done for shoulder instability after a dislocation, where the labrum has been torn off the front of the socket. The socket is small and the bone is thin, so anchor size and how much bone each one takes up matter more here than almost anywhere else in the shoulder — which is part of why all-suture anchors have been taken up readily for this operation.

BICEPS TENODESIS (LOOP AND TACK)

Sometimes the long head of biceps tendon is detached from inside the joint and reattached to the arm bone a little lower down. The requirement is different again: not spreading a tendon over a surface, and not restoring a rim, but holding one cord-like tendon securely at a single point while it heals into the bone.

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One straightforward way to do this is often called **loop and tack**. A stitch is passed around the tendon and locked onto itself, so it grips the tendon like a noose rather than relying on the thread pulling through tendon fibres. That loop is then tacked down to the bone with a single small anchor.

The alternative approach wedges the tendon into a drilled socket with a screw. Loop and tack avoids drilling a socket of that size, so less bone is removed, and the grip on the tendon comes from the looped stitch rather than from compression against a screw.

A NOTE ON KNOTS

In any of these repairs, the stitches may be tied in knots, or held by a locking mechanism built into the anchor so that no knot is needed. Both are in routine use, and the evidence does not favour either.

What to expect

The anchors stay in. They are not removed once healing is complete, and they do not need to be. Removing them would mean another operation and would take bone with them.

They will not set off airport scanners. All-suture and PEEK anchors contain no metal at all. Even titanium anchors are far too small to trigger a walk-through detector.

You can have an MRI. Anchors in current use are MRI-safe. Metal anchors can cause a local blur on the image near the anchor, which is one of the practical advantages of the newer materials — the scan is easier to read if your shoulder ever needs imaging again.

They are not what limits your recovery. The anchor is secure from the moment it is placed; it is the tendon-to-bone healing that takes months, and that is what your sling and rehabilitation timeline are protecting. Recovery follows the timeline of the operation itself, so see the page for your specific procedure.

Occasionally an anchor can loosen or pull out, most often in soft bone. This is uncommon, and it is one of the reasons the choice of anchor is matched to the quality of your bone.

What the evidence says

The honest summary is that anchors work well and that the differences between the various types and techniques are smaller than the amount written about them would suggest.

All-suture anchors hold as well as solid anchors in testing and in patients, while removing less bone — which is the main reason for the shift towards them. Comparisons of the newer suture tapes against conventional round sutures have not shown a clear clinical advantage, despite a sound theoretical case for them. Tying knots and using knotless designs give much the same result.

Double-row repairs do appear to improve the chance of the tendon healing to bone on a follow-up scan, but that has not translated into a clear difference in how shoulders feel and function. That gap between what the scan shows and what the patient reports is a recurring theme in shoulder surgery.

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The materials story is the one place where the evidence is genuinely one-sided: the early bioabsorbable anchors produced meaningfully more problems than what replaced them, which is why they are largely no longer used.

If you want the detail — how anchors developed, what the sutures are actually made of, and how all this compares with the older technique of passing stitches through tunnels drilled in the bone — that is in the section below.

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