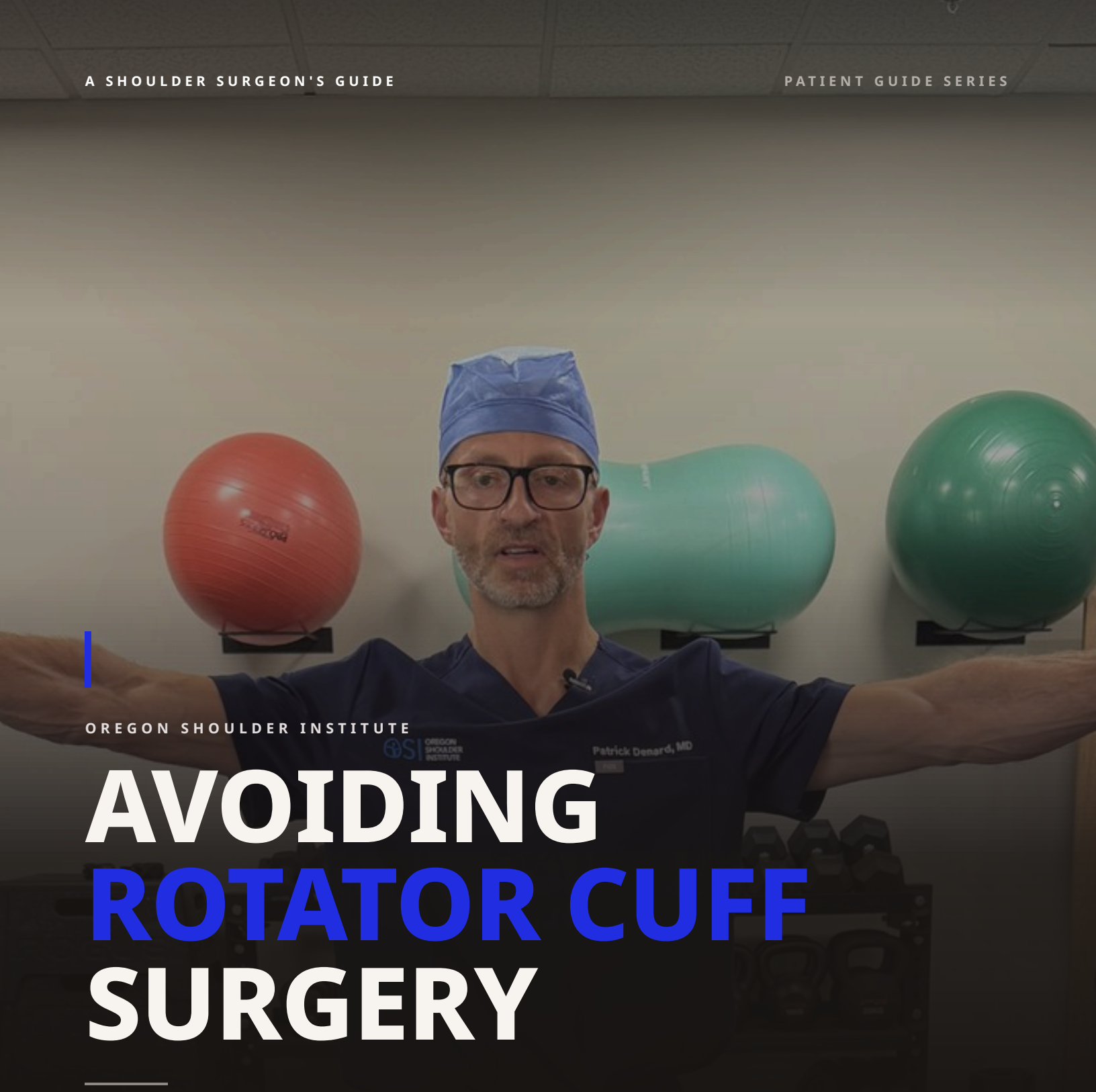


OREGON SHOULDER INSTITUTE

AVOIDING ROTATOR CUFF SURGERY

What the evidence actually says about treating a torn rotator cuff without an operation — and how to know, in six weeks, whether it's working.

Patrick J. Denard, MD
Fellowship-trained shoulder surgeon
Founder, Oregon Shoulder Institute · Medford, Oregon

BEFORE YOU START

Why a surgeon wrote a guide about not having surgery

I repair rotator cuffs for a living. That is a reasonable thing to hold against me while you read this, so let me address it directly.



Patrick J. Denard, MD
Oregon Shoulder Institute, Medford

The single most common thing I see in my office is a patient who has been told they have a rotator cuff tear and has concluded that surgery is now inevitable. Often they have been told exactly that. Frequently it isn't true.

Most rotator cuff tears are not traumatic injuries. They are the slow, quiet fraying of a tendon that has been working for fifty or sixty years, and the majority of them can be managed without an operation — permanently. The best evidence we have followed patients with real, full-thickness tears for a full decade after a course of physical therapy. Roughly seven in ten never had surgery, and the ones who improved early stayed improved.

The flip side is equally true and gets said far less often. A small group of people have tears where waiting genuinely costs them something — where the tendon retracts, the muscle turns to fat, and a repairable problem quietly becomes an unrepairable one. Telling that group to "try therapy and see" is its own kind of malpractice.

> *So this guide has one job: help you figure out which group you are in, and give you a real six-week program to find out.*

I am not going to pretend the incentives don't exist. I make my living operating. What I would rather have is your trust, and the only way to earn that is to tell you plainly when an operation is the wrong idea.

Patrick J. Denard, MD
Fellowship-trained shoulder surgeon · Oregon Shoulder Institute

HOW TO USE THIS GUIDE

Two readers, two starting points

People arrive at this question from two very different places. Find yourself below and start where it tells you to.

PATH A

YOUR SHOULDER HURTS. YOU HAVEN'T HAD AN MRI.

You have had aching for weeks or months, it's worse at night, reaching into the back seat or fastening a seatbelt is unpleasant. Nobody has put a name to it yet, and you're wondering whether you are looking at an operation.

You are in the best possible position, because you haven't yet been anchored to a picture. Understand what's actually happening (Part One), then start the six-week program (Part Three). An MRI right now would very likely find something — and that finding might have nothing to do with your pain.

Start at Part One, then go directly to Part Three. Skip Part Two for now.

PATH B

YOU HAVE AN MRI AND YOU'VE BEEN TOLD YOU NEED SURGERY.

You have a report full of words like *full-thickness*, *retraction*, and *atrophy*. Possibly a surgery date. You want to know whether that recommendation is right, and whether you have time to find out.

Usually you do — but "usually" is doing real work in that sentence. Read Part Two carefully before anything else; four specific findings on your report change the math.

Start at Part Two, then Part Four, then come back to Part Three.

WHAT I TELL PATIENTS IN CLINIC

A surgical recommendation is an opinion, not a diagnosis. It rests on your images, your exam, your goals, and your surgeon's judgment — and reasonable surgeons disagree about the same shoulder more often than most patients would guess. You are allowed to take six weeks to gather information. In the vast majority of degenerative tears, six weeks costs you nothing.

IMPORTANT — PLEASE READ

This guide is educational. It is not medical advice, and it cannot account for your specific anatomy, imaging, medical history, or examination. Nothing here creates a physician–patient relationship. Exercise programs carry risk; stop anything that causes sharp or escalating pain and speak with a physician or physical therapist. If you have sudden weakness after an injury, an inability to lift your arm, numbness, fever, or pain following a fall, seek in-person evaluation promptly rather than beginning a home program. Always discuss your own situation with your treating surgeon.

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THE SHORT VERSION, IF YOU READ NOTHING ELSE

- Most rotator cuff tears are degenerative, not injuries. Degenerative tears often do well without surgery.
- A tear on an MRI is not, by itself, a reason to operate. Plenty of people have one and no pain.
- Six weeks of the right therapy is a legitimate diagnostic test. Most people who are going to respond have started responding by then.
- If you respond, the durability is excellent — ten-year data shows those gains hold.
- Two groups should go straight to repair: true acute traumatic tears, and full-thickness tears in younger patients.
- Over a long horizon the evidence shifts. The longest randomized trial favours repair at fifteen years — so your age matters as much as your MRI.



01

Understand what you actually have

Before you can decide anything, you need to know which of several very different problems you're dealing with. They share a name and almost nothing else.

- What the cuff does
- Tendinopathy, partial tear, full tear
- Traumatic versus degenerative
- Tears in people with no pain

01 — UNDERSTAND WHAT YOU HAVE

What the rotator cuff does, and what a tear really is

The cuff isn't a lifting muscle. It's a centering mechanism — and that distinction explains almost everything about why therapy works.

Your shoulder is a ball sitting on a shallow dish. There is very little bony containment; the humeral head is roughly the size of a golf ball resting against a surface about the size of a quarter. That design buys you extraordinary range of motion and pays for it in stability.

Four muscles wrap that ball and hold it centered on the dish while the big muscles — deltoid, pectoralis, latissimus — move the arm. Those four are the rotator cuff.

MUSCLE	WHERE IT ATTACHES	WHAT IT DOES
Supraspinatus	Top of the ball	Starts elevation and compresses the head down into the socket. Torn most often.
Infraspinatus	Back of the ball	Rotates the arm outward. Reaching behind you, opening a door.
Teres minor	Lower back of the ball	Assists external rotation. Rarely torn in isolation.
Subscapularis	Front of the ball	Rotates the arm inward. Tucking in a shirt. A tear here matters more than most patients are told.

WHAT "A TEAR" ACTUALLY MEANS

The word conjures a clean rip, like tearing paper. That is what happens in a traumatic injury, and it is the minority of cases.

The far more common version is attritional. Tendon is living tissue with a marginal blood supply, and over decades of use it accumulates microscopic damage faster than it can repair it. The collagen fibers disorganize, the tissue thins, and eventually a hole forms at the weakest point. This does not happen in an instant. It happens over years, usually silently, and the day you notice pain is rarely the day the hole appeared.

> **THE THING MOST PATIENTS GET WRONG**
>
> Pain and structural damage are not the same thing, and they correlate far more loosely than you'd expect. The hole in the tendon is not a pain generator. Pain in a degenerative cuff usually comes from the inflamed bursa above it, from irritated tendon tissue at the edges of the defect, and from the mechanics of a shoulder whose centering system is working badly. **All three of those are treatable without closing the hole.**

WHY THIS MAKES NON-OPERATIVE TREATMENT PLAUSIBLE

If the cuff's job were to lift your arm, a hole in it would be catastrophic and the only fix would be a repair. But the cuff's job is to hold the ball centered while other muscles lift. That is a task with redundancy built in.

When the supraspinatus has a defect, the remaining cuff muscles — particularly the infraspinatus and subscapularis — can often maintain that centering on their own, provided they are strong enough and the scapula underneath is moving correctly. This is called a balanced force couple. When it's intact, people function remarkably well with holes in their tendons. When it's lost, they don't.

Therapy is not trying to heal your tear. It is trying to restore that balance. That's a realistic goal, and it's why it works as often as it does.

Age 66 the point at which half of people have a full-thickness rotator cuff tear

> **THE NUMBER TO HOLD ON TO**
>
> By about age 65, roughly half of people have a full-thickness rotator cuff tear. In the best natural-history work on this, the 50% threshold falls at age 66 — that is the age at which a patient with a painful tear on one side has a coin-flip chance of a tear on the other, painless side as well. Cuff tearing is, to a large extent, a normal feature of an aging shoulder. It is not a diagnosis of something having gone wrong with you.

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02 — UNDERSTAND WHAT YOU HAVE

Three different problems people call “a rotator cuff tear”

These get lumped together in conversation and they have genuinely different prognoses. Find out which you have before you decide anything.

01

TENDINOPATHY & BURSITIS

No tear at all. The tendon is irritated and thickened, and the bursa is inflamed.

Responds best to non-operative care.

02

PARTIAL-THICKNESS TEAR

Torn part of the way through. The tendon is still continuous; there is no full hole.

Progresses more slowly; many do well without surgery.

03

FULL-THICKNESS TEAR

A complete defect from the joint surface to the bursa above.

Sounds final — it isn't. Size and context matter.

1. Tendinopathy and bursitis (no tear at all)

The tendon is irritated and thickened, and the bursa — the lubricating sac between the tendon and the bone above it — is inflamed. There is no hole. This is the most common cause of shoulder pain in adults and it is the version that responds best to non-operative care.

You'll often see it written as *tendinosis*, *tendinitis*, *subacromial bursitis*, or *impingement syndrome*. Surgery for this diagnosis alone has not held up well under randomized trials. If this is your report, the case for an operation is weak.

2. Partial-thickness tear

The tendon is torn part of the way through — it might be a quarter, a half, or nearly all of the thickness, from either the joint side (articular-sided) or the bursal side. The tendon is still continuous; there is no full hole.

Partial tears progress more slowly than full-thickness tears, and a large share of people with them do well without surgery. Depth matters: tears involving more than about half the tendon thickness behave more like full-thickness tears and get more scrutiny.

3. Full-thickness tear

There is a complete defect through the tendon — a hole from the joint surface to the bursa above. This sounds like the end of the conversation, and it isn't. Full-thickness tears come in a wide range of sizes, from a few millimeters to tears involving multiple tendons, and they carry very different implications.

SIZE ON REPORT	WHAT THE DESCRIPTION REFERS TO
Small	Under roughly 1 cm across. A defect within a single tendon, usually the supraspinatus.
Medium	Roughly 1–3 cm. Still typically confined to one tendon.
Large	Roughly 3–5 cm. Often extending to involve the edge of a second tendon.
Massive	Greater than 5 cm, or involving two or more tendons in full thickness.

These are descriptive categories, not treatment categories. Size is one input among several — alongside tendon quality, muscle condition, how the tear happened, your age and your demands — and no size bracket on its own tells you whether you need an operation. Chapters Six, Twelve and Thirteen deal with how those inputs actually combine.

> **WORTH KNOWING**
>
> A substantial proportion of people with full-thickness rotator cuff tears never have surgery and never come to significant harm. Estimates drawn from population prevalence and national surgical volumes suggest that the great majority of full-thickness defects in the population are never operated on. That is not an argument against surgery — it is an argument against assuming a hole obligates one.

03 — UNDERSTAND WHAT YOU HAVE

Traumatic or degenerative: the question that decides everything

If you take one idea from this guide, take this one. Almost every recommendation downstream depends on the answer.

Two people can have MRI reports that read almost identically and need opposite advice. The difference is how the tear got there.

	DEGENERATIVE (ATRAUMATIC)	TRAUMATIC (ACUTE)
How it started	Gradual. Often no memorable event, or a trivial one.	A specific moment. A fall, a catch, a heavy pull, a dislocation.
Typical age	Usually over 65, rising steadily with each decade.	Any age, but the ones that matter most are under 65.
Tendon quality	Already degenerated. The tissue was failing before it tore.	Healthy tendon, acutely disrupted.
Weakness	Mild, gradual, often overshadowed by pain.	Sudden and obvious. “I couldn't lift my arm after.”
Non-operative odds	Good. This is the group the therapy evidence is built on.	Meaningfully worse, particularly with multiple tendons involved.
Does timing matter?	Rarely urgent. Weeks of trial cost little.	Yes. Earlier repair is generally associated with better function.

IF YOUR TEAR WAS TRAUMATIC

The calculus shifts. In studies of acute traumatic full-thickness tears, non-operative treatment fails in a substantial share of patients — with involvement of more than one tendon being among the strongest predictors of failure. Repair performed within the first weeks to few months after the injury generally yields better functional results than repair delayed well beyond that window.

This does not mean every traumatic tear needs an urgent operation. Small traumatic tears have done well with therapy in randomized comparisons. It does mean you should be evaluated promptly by a shoulder specialist rather than starting a self-directed six-week trial — see Chapter Twelve.

THE HONEST COMPLICATION

Plenty of people fall into neither box cleanly. A very common story: a shoulder that has ached mildly for two years, then a modest fall, then severe pain and weakness. That is a degenerative tear that acutely extended — an acute-on-chronic tear.

These are judged on the particulars: how much function was lost, how quickly, how much tendon was already compromised, and what the muscle looks like. It is a genuinely difficult call and one worth getting a second opinion on.

> **THE QUESTION I ASK EVERY NEW PATIENT**
>
> **"Can you point to a day?"** If someone can name the afternoon it changed — the ladder, the dog on the leash, the suitcase in the overhead bin — I treat that shoulder differently from one that simply got worse over a winter. Before your next appointment, write down your honest answer. Not what you think happened, what you actually remember.

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04 — UNDERSTAND WHAT YOU HAVE

What tears look like in people who have no pain at all

This is the data that reframes the entire conversation, and it is rarely shown to patients.

If you scanned the shoulders of a thousand people walking around with no complaints whatsoever, you would find a lot of torn rotator cuffs.

A well-known study screened the shoulders of residents of a single Japanese village with ultrasound — not patients seeking care, just people who showed up for a community health check. Of 664 people examined, 22.1% had full-thickness rotator cuff tears, with prevalence rising by decade: none in the 20s through 40s, 10.7% in the 50s, 15.2% in the 60s, 26.5% in the 70s, and 36.6% in the 80s.

65%

of the full-thickness tears found in that population screening caused no symptoms at all. Symptomatic tears accounted for roughly a third; asymptomatic tears made up about two-thirds, and over the age of 60 asymptomatic tears accounted for two out of three.

36.6%

of people in their eighties had a full-thickness tear. Most of them had no idea, and most were not seeking care for their shoulders.

Broader reviews of the literature find the same pattern: rotator cuff abnormalities become steadily more common with each decade of life, in people with symptoms and in people without, and the relationship between what the imaging shows and what the patient feels is considerably weaker than intuition suggests.

WHAT TO TAKE FROM THIS — AND WHAT NOT TO

The wrong conclusion is that tears don't matter. They plainly do; you are reading this because yours hurts.

The right conclusion is narrower and more useful: finding a tear on your MRI does not establish that the tear is causing your pain, and it does not by itself indicate an operation. If a third of your age cohort has the same finding and feels fine, then the finding alone cannot be what separates you from them. Something else is — the bursa, the mechanics, the strength of what remains, the sleep position, the deconditioning.

Those are the things therapy addresses. Which is precisely why therapy works in most people despite the hole still being there at the end of it.

> **REFRAME**
>
> The question is not “do I have a tear?” You very likely do. The question is “is my tear the kind that will keep hurting, keep growing, and cost me function — and can I change that without an operation?” Parts Two, Three, and Four are about answering that.



02

Read your MRI like a surgeon

Radiology reports are written for physicians, not patients. Here is what the language actually means — and which four findings genuinely change what you should do.

- A plain-language glossary
- What retraction really tells you
- Fatty infiltration and why it's the clock
- The findings that override everything else

05 — READ YOUR MRI

Your report, line by line

Pull up your MRI report and read along. Most of what alarms patients in these documents is either normal aging or clinically irrelevant.

WHAT THE REPORT SAYS	WHAT IT MEANS	CHANGES THE PLAN?
Tendinosis / tendinopathy	Degenerated, thickened tendon tissue. No hole.	RARELY
Subacromial–subdeltoid bursitis	The lubricating sac above the cuff is inflamed. A common and treatable pain source.	NO
Partial-thickness tear, articular surface	Torn partway through, from the joint side. The most common partial tear.	SOMETIMES
Full-thickness tear	A complete defect through the tendon.	SOMETIMES
Retraction (measured in cm)	How far the torn tendon end has pulled back from where it belongs on the bone.	YES
Goutallier grade / fatty infiltration	How much of the muscle has been replaced by fat. Graded 0–4.	YES
Muscle atrophy	The muscle belly has shrunk. Often reported alongside fatty change.	YES
Subscapularis tear	Tear of the front cuff tendon.	YES
Type II or III acromion	The shape of the bone above the cuff. Curved or hooked.	NO
AC joint arthrosis / osteoarthritis	Arthritis of the small joint at the top of the shoulder. Near-universal after 40.	RARELY
Biceps tendinopathy	The long head of the biceps is degenerated. A real pain source, but not one that changes the treatment decision.	NO
Biceps subluxation or dislocation	The biceps tendon has slipped out of its groove. It is held there by the subscapularis, so this finding indicates a full-thickness subscapularis tear — whether or not the report says so.	YES Important
Labral fraying / degenerative labral tear	Wear of the cartilage rim. Extremely common with age.	NO
Superior migration / narrowed acromiohumeral interval	The ball appears to sit high relative to the socket. On an MRI you are lying down, so this measurement is unreliable — it is assessed on a standing X-ray, not a scan.	NOT ON MRI

WHAT THE REPORT SAYS	WHAT IT MEANS	CHANGES THE PLAN?
Glenohumeral osteoarthritis	Arthritis of the main ball-and-socket joint itself.	**YES** Different problem

A WORD ABOUT THE "HOOKED ACROMION"

For years the shape of the acromion was treated as a primary cause of cuff disease. That framing has not held up: a hooked or spurred acromion does not necessarily cause a rotator cuff tear, and it is not something that needs to be removed as part of non-operative treatment. If a hooked acromion is the headline reason you are being offered surgery, ask more questions.

The picture is different once you are already having an operation. There the evidence suggests addressing significant spurring at the time of repair may carry a longer-term benefit, including a lower rate of revision surgery. In other words: not a reason to operate, but reasonable to deal with if you are operating anyway.

TWO NUMBERS WORTH FINDING IN YOUR REPORT

Buried in the text there are usually two measurements that matter more than anything else on the page. Find them and write them down — you will use them in the worksheet in Chapter Fourteen.

NUMBER ONE

TEAR SIZE

Often given in two dimensions: anterior-to-posterior (how wide across the tendon) and medial-to-lateral (how far the defect extends). Larger in either dimension means more scrutiny.

NUMBER TWO

GOUTALLIER GRADE

Or a description of fatty change in the supraspinatus and infraspinatus. If your report doesn't mention it, that is itself worth asking about.

06 — READ YOUR MRI

The four findings that actually change the decision

Most of an MRI report is noise for decision-making purposes. These four are signal.

01 Fatty infiltration of the muscle

This is the most important finding on your report and the one most patients have never heard of. When a tendon stays torn, the muscle it belongs to stops being loaded properly and is gradually replaced by fat. It is graded from 0 (normal) to 4 (more fat than muscle).

The critical point: **this change is essentially irreversible.** Repairing the tendon does not bring the muscle back. Once fatty change is advanced, the outcome of a repair is meaningfully worse, and at the far end of the scale repair may not be worth doing at all.

Fatty change progresses faster in tears that are already large and in tears that are enlarging. Research has identified measurable thresholds on the initial MRI — larger tear dimensions and higher baseline fatty infiltration — that predict substantially higher rates of further progression over roughly the next year and a half.

> **HOW TO USE THIS**
>
> Grade 0 or 1 with a small-to-medium tear: you have room to try therapy. Grade 2 with a large tear, or any evidence that fatty change has progressed between two scans: the window is closing and the conversation should be happening now, not in six months.

02 Retraction

How far the tendon has pulled back toward the middle of the body. A tendon retracted a centimeter is usually straightforward to bring back to bone. A tendon retracted to the edge of the socket is a different operation with different odds, and it tends not to become easier with time.

03 Subscapularis involvement

Tears of the front tendon get less attention than they deserve. The subscapularis is the anterior half of the force couple that keeps the ball centered. When it fails alongside the supraspinatus, that balance is lost in a way that therapy struggles to compensate for. Subscapularis tears also tend to be underreported on imaging. If you have front-of-shoulder pain and difficulty tucking in a shirt or pushing off a chair, raise it specifically.

04 Glenohumeral arthritis

If the main joint surface itself is worn out, then repairing the cuff does not address your primary problem, and the treatment path is entirely different. This is worth identifying early so you don't spend a year working on the wrong diagnosis.

PUTTING IT TOGETHER

AGE 72

TRIAL THERAPY

A 72-year-old with a 1.5 cm supraspinatus tear, no retraction, Goutallier 0 and an intact subscapularis is an excellent candidate for a six-week trial — and if it works, the evidence says it is likely to keep working.

AGE 58

SURGICAL OPINION NOW

A 58-year-old with a 4 cm two-tendon tear, 3 cm of retraction and Goutallier 2 change is a different patient entirely, and the honest advice there is to stop reading and get a surgical opinion this month.

AGE 48

REPAIR OVER A TRIAL

A 48-year-old with a full-thickness tear and no atrophy is a third case again, and the one most often mishandled. Nothing about that shoulder is urgent today, which is exactly why it tends to get sent to therapy.

But this patient has healthy muscle worth protecting and thirty-five years of demand ahead of them, and the long-term randomized evidence in Chapter Thirteen favours repair. Here I would recommend surgery over a therapy trial — not to fix today's pain, but to stop the tear progressing while the tendon is still good.



03

The six-week program

Six weeks is not an arbitrary number. It is roughly the point at which a rotator cuff tells you what it is going to do — and the responders stay responders for a very long time.

- The ten-year evidence
- Three phases, two weeks each
- What to stop doing
- Injections, biologics, and the factors you control

Why six weeks, and what the ten-year data shows

The most important study in this field followed 452 people with real full-thickness tears for a decade. It is the reason this guide is built the way it is.

The Multicenter Orthopaedic Outcomes Network — the MOON Shoulder Group — enrolled 452 patients with symptomatic, atraumatic, full-thickness rotator cuff tears. Not tendinitis. Not partial tears. Complete holes in the tendon, in patients with pain, at multiple academic centers across the United States.

Every patient was put through a standardized physical therapy protocol lasting six to twelve weeks, and then followed — at one, two, five, seven, and ten years — to see who ended up having surgery and how everyone was doing.

WHAT THEY FOUND AT TWO YEARS

Patient-reported outcomes improved significantly by six and twelve weeks, and roughly 75% of patients never elected to have surgery. Just as importantly, the study identified *when* the program failed for the people it failed: patients who decided on surgery generally did so between six and twelve weeks after starting therapy, with few crossing over between three months and two years.

That timing is the practical heart of this guide. The program declares itself early. If therapy is going to fail you, it tends to become apparent within the first six to twelve weeks — not after a year of grinding away at it.

WHAT THEY FOUND AT TEN YEARS

~70%

Of the original 452 patients, 115 underwent a surgical procedure at some point across the full ten years. Roughly seven in ten never did.

56.5%

of those surgeries happened within six months of enrollment. The rest were spread across the following nine and a half years.

No decline

Patient-reported outcome measures all improved following physical therapy — and in the patients who did not go on to surgery, those scores did not decline across the ten-year follow-up period.

Belief

The investigators identified a risk factor for failure that has nothing to do with anatomy: patients who did not believe physical therapy would work were more likely to end up having surgery early. Workers' compensation status and activity level predicted surgery later on.

THE FINDING THAT SHOULD CHANGE HOW YOU THINK ABOUT THIS

This is the part that rarely makes it into a clinic conversation. Non-operative success was not a temporary reprieve. People who improved with the therapy program and stayed out of the operating room were still doing well ten years later, with no measurable erosion of their outcomes over that decade. The fear that you're only postponing the inevitable — that the tear will eventually catch up with you — is not what the long-term data shows for this group.

WHY SIX WEEKS RATHER THAN TWELVE

The MOON protocol ran six to twelve weeks. I build the trial around six for three reasons.

01

DIRECTION OF TRAVEL

Six weeks is enough to see direction of travel. Outcomes in the cohort had already improved measurably by the six-week mark. If nothing at all has moved by then — not pain, not night symptoms, not motion, not function — that is real information rather than impatience.

02

PEOPLE FINISH IT

Six weeks is short enough that people actually finish it. The most common reason non-operative treatment "fails" in the real world is that it was never completed. A twelve-week ask has a much higher dropout rate than a six-week one, and an abandoned program tells you nothing.

03

A DECISION POINT

Six weeks gives you a decision point, not a verdict. At week six you either continue a program that is clearly working, or you go get properly evaluated with six weeks of useful data in hand. Both are good outcomes. Drifting is the bad outcome.

If you are improving at week six, you keep going — and you should expect improvement to continue well beyond it. The six weeks is the test, not the whole treatment.

THE PREDICTOR NOBODY EXPECTS

In the MOON cohort, low patient expectations about whether physical therapy would work was itself a predictor of ending up in surgery early. Workers' compensation status and activity level mattered more for surgery later on.

Read that again. What patients believed about the program at the start partly predicted whether they ended up having an operation. I don't think that's mystical — I think people who expect a program to fail do it half-heartedly, quit at the first bad week, and call it a failure. **If you are going to do this, do it properly for six weeks.** Half-doing it is worse than not doing it, because you'll conclude something false about your shoulder.

08 — THE SIX-WEEK PROGRAM

The program, phase by phase

Three phases of two weeks each, plus a scapular series that runs throughout. Progression is by response, not by calendar. Each phase ends with the criteria you should meet before starting the next one.

PHASE	WEEKS	FOCUS
Phase One	1–2	Settle it down and restore motion
Phase Two	3–4	Early strengthening — isometrics and the wall slide
Phase Three	5–6	Load it — progressive bands, rows and eccentric scaption
Scapular series	1–6	Runs throughout — the spine of the program

RULES THAT APPLY TO ALL SIX WEEKS

- **The pain rule.** Discomfort up to about 4 out of 10 during an exercise is acceptable. It must settle within 24 hours. Sharp pain, or pain that is worse the next morning, means back off the load or the range.
- **Frequency.** Mobility work twice daily. Strengthening every other day — tendon needs recovery time between loading sessions, and daily strengthening is a common self-sabotage.
- **Keep the elbow below shoulder height** for the first four weeks in every strengthening exercise.
- **Slow tempo.** Three seconds out, three seconds back. Speed recruits the big muscles and lets the cuff avoid the work.
- **Track it.** Use the log at the back. Week-to-week memory for pain is unreliable, and at week six you need honest data, not an impression.

WEEKS 1–2

Phase One — Settle it down and restore motion

The goal is not strength. It is a shoulder that moves freely and sleeps through the night. Strengthening a stiff, angry shoulder does not work, which is why so many programs stall in week one.

WATCH BEFORE YOU START

Written descriptions only get you so far — most of the mistakes I see are in the setup, not the movement. Every exercise in this program is demonstrated on my YouTube channel, with the detail written instructions can't carry.

youtube.com/@patrickdenardmd

Scan to watch the exercises



START
seated upright, forearm on a towel



FINISH
hinged forward, arm slid out

Table slides

Sit at a table with your forearm on a towel. Let the towel slide away from you as you hinge forward, taking the arm into elevation with the table carrying its weight.

DOSE 10 reps, 5-sec hold, 2× daily



START
arms low, good arm holding the wrist



FINISH
pushed overhead

Supine assisted elevation

Lie on your back, hold a cane or broomstick with both hands, use the good arm to push the sore arm overhead. Gravity is removed, so the cuff can stay quiet.

DOSE 10 reps, 5-sec hold, 2× daily



START
cane vertical, elbow at the side



FINISH
cane rotates the forearm outward

Supine assisted external rotation

Same position, elbow at your side bent to 90°, use the cane to rotate the forearm outward.

DOSE 10 reps, 5-sec hold, 2× daily



START
forearm on the frame, body square



FINISH
step through and rotate away

Doorframe stretch

Stand in a doorway with your forearm on the frame, elbow at shoulder height. Step through and rotate away until you feel a stretch across the front of the shoulder.

DOSE 3 × 30 sec, 2× daily



START
arm brought across the chest



FINISH
other hand pulls it further across

Cross-body stretch

Pull the arm across your chest with the other hand, keeping the shoulder blade down rather than letting it ride up.

DOSE 3 × 30 sec, 2× daily

SLEEP MATTERS MORE THAN ANY EXERCISE IN THIS PHASE

Night pain is usually the worst symptom and the first to improve. Sleep on your back or on the opposite side, with a pillow supporting the sore arm in front of you so it isn't hanging into the mattress. A pillow under the elbow on your back prevents the arm from dropping backward, which stretches the front of the cuff all night.

MOVE TO PHASE TWO WHEN

- [ ] You can take the arm overhead with assistance — the cane or the table — without sharp pain.
- [ ] You are waking fewer times at night than you were at the start.
- [ ] Whatever soreness the mobility work causes has settled by the next morning.

If you are short on any of these at the end of week two, repeat Phase One for another week. Nothing is lost. Loading a shoulder that still won't move is how people conclude therapy failed when it was never given a chance to work.

WEEKS 1–6

The scapular series — all six weeks

The shoulder blade is the platform the rotator cuff works from. If it isn't controlled, every cuff exercise you do is being performed on a moving foundation — which is the single most common reason a technically correct program fails to help.

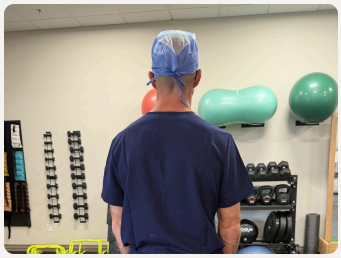
These four start in week one alongside the mobility work and continue right through to week six. They are not a phase; they are the spine of the program.

WATCH BEFORE YOU START

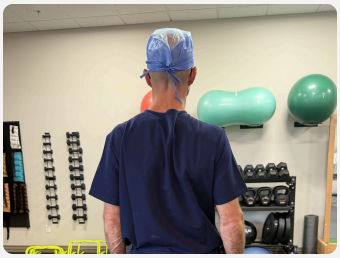
Written descriptions only get you so far — most of the mistakes I see are in the setup, not the movement. Every exercise in this program is demonstrated on my YouTube channel, with the detail written instructions can't carry.

youtube.com/@patrickdenardmd

Scan to watch the exercises



START
shoulders relaxed forward



FINISH
blades drawn down and together

Scapular setting

Sitting or standing, gently draw the shoulder blades down and back. No shrugging. This is the movement every exercise below is built on.

DOSE 10 reps, 5-sec hold, daily



START
arms hanging over the edge



FINISH
blades squeezed, arms stay low

Prone scapular retraction

Face down on a bed, arms hanging over the edge, squeeze the shoulder blades together without lifting the arms.

DOSE 2–3 × 12, every other day



Y POSITION
hinged forward, arm reaching out



W POSITION
elbow bent, drawn back

Bent-over Y and W

Hinge forward at the hips with a flat back, arms hanging. Raise them overhead into a Y, then repeat with the elbows bent into a W. Light or no weight.

DOSE 2–3 × 10 each, every other day



START
hinged, reaching toward the opposite knee



FINISH
driven up through the hips

Lawnmower

Staggered stance, support hand on the front thigh, hinged forward. Reach the working arm down toward the opposite knee, then drive up through the hips as you pull the elbow back to your ribs.

DOSE **2–3 × 10, every other day**

WEEKS 3–4 Phase Two — Early strengthening

Now you start loading the cuff, but without moving through range against resistance. Isometrics build tension with minimal irritation, and the wall slide reintroduces overhead motion with the arm supported so the shoulder blade can learn to move correctly under a little load.

WATCH BEFORE YOU START

Written descriptions only get you so far — most of the mistakes I see are in the setup, not the movement. Every exercise in this program is demonstrated on my YouTube channel, with the detail written instructions can't carry.

youtube.com/@patrickdenardmd

Scan to watch the exercises



ABDUCTION
press outward



EXTERNAL ROTATION
press out into the frame

The two isometrics — nothing moves in either

Isometric abduction. Stand beside a doorframe or upright with the arm at your side. Press the back of the hand outward into it without moving. Build to about 70% effort.

Isometric external rotation. Same position, pressing outward against the frame. Nothing moves — the shoulder works, the arm stays put.

DOSE **5 × 10-sec holds each**



START
forearms on the upright at chest height



FINISH
slid up, blades set

Wall slide

Forearms on the wall at chest height, shoulder blades set. Slide them up the wall as far as you can without shrugging or arching your back, then lower under control.

DOSE 2–3 × 10, every other day

Continue Phase One and the scapular series

Motion work does not stop when strengthening starts.

DOSE As above

MOVE TO PHASE THREE WHEN

- [ ] You can hold the isometrics at about 70% effort for the full ten seconds with pain no higher than 4 out of 10, settling within 24 hours.
- [ ] You can slide to at least shoulder height on the wall without shrugging or arching your back.
- [ ] Night pain is clearly better than it was at baseline.

Miss any one of them and repeat Phase Two for a week rather than pushing on. Adding bands to a shoulder that still shrugs on every wall slide simply loads the compensation instead of the cuff.

WEEKS 5–6

Phase Three — Load it

This is where most home programs stop short and where the meaningful gains live. Tendon and muscle adapt to progressive load, not to endless repetitions of the same yellow band. **Move up a band colour whenever 12 reps start to feel easy.**

WATCH BEFORE YOU START

Written descriptions only get you so far — most of the mistakes I see are in the setup, not the movement. Every exercise in this program is demonstrated on my YouTube channel, with the detail written instructions can't carry.

youtube.com/@patrickdenardmd

Scan to watch the exercises



START
forearm across the body



FINISH
rotated outward, elbow pinned

Band external rotation

Band anchored at waist height, elbow pinned to your side over a rolled towel, rotate the forearm outward. Slow return. **This is the single most important exercise in the program.**

DOSE 3 × 12, every other day



START
forearm out



FINISH
rotated across the body

Band internal rotation

Same setup, working the other direction — forearm starts out and rotates across the body. The subscapularis is the front half of the force couple and it needs loading too.

DOSE 3 × 12, every other day



START
arm extended toward the anchor



FINISH
elbow pulled back past the ribs

Band row

Band at chest height, pull the elbows back past your ribs, squeezing the shoulder blades. Elbows stay low. Increase resistance weekly.

DOSE 3 × 12, every other day



START
raised with the good arm assisting



FINISH
lowered under control over 3–5 seconds

Eccentric scaption

Raise the arm to shoulder height using the good arm to assist, then let go and lower the sore arm on its own over three to five seconds. Only the lowering is done under its own power.

DOSE 3 × 10, every other day

Lawnmower, loaded

The scapular series movement, now with a light dumbbell or a band under the front foot.

DOSE 3 × 10, every other day

WHY THE LOWERING MATTERS — AND WHEN TO STEP BACK

Eccentric loading — lengthening a muscle while it resists — produces more tension in the tendon than lifting the same weight does, and it is generally better tolerated in an irritable shoulder. It is the reason scaption appears here as a lowering exercise rather than a lifting one. Raise with help; lower on your own, slowly. If you cannot control the descent, the weight of your own arm is still too much and you should stay in Phase Two another week.

SHOULD YOU DO THIS WITH A PHYSICAL THERAPIST?

If you can, yes — particularly for the first two weeks, and particularly if you've had a cuff problem before. A good therapist catches the compensations you can't see yourself, especially the shrug that creeps into every overhead motion. But a supervised program you attend twice a week and ignore in between is worse than a home program you actually perform. The evidence base here is built on structured, progressive exercise. Who supervises it matters less than whether it gets done.

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09 — THE SIX-WEEK PROGRAM

What to stop doing for six weeks

Removing the things that keep irritating the tendon does about as much work as the exercises do.

STOP ENTIRELY FOR SIX WEEKS

MOVEMENT	WHY
Overhead pressing	Loads the cuff at the exact angle where the space is tightest. Nothing in your life requires it.
Lateral raises above shoulder height	Maximum demand on the supraspinatus in its most compromised position.
Upright rows	Combines elevation and internal rotation — reliably provocative.
Dips and deep bench press	Extreme extension puts the front of the cuff and the biceps tendon under high tension.
Behind-the-neck anything	Pulldowns, presses, stretches. There is no upside.
Sleeping on the sore side	Hours of compression every night undo a day of good rehab.
Repetitive overhead work	Painting ceilings, hedge trimming, reaching into high cupboards. Use a step stool so the work happens at chest height.

KEEP DOING

This is not rest. Prolonged immobilisation stiffens a shoulder and weakens everything around it, and a stiff shoulder is a harder problem than a torn one. Keep walking, keep using the arm at and below chest height, keep your legs and core training, keep carrying things with the elbow at your side.

> **A COMMON AND COSTLY MISTAKE**
>
> Patients frequently stop using the arm entirely out of fear of making the tear worse. In a degenerative tear, ordinary daily use below shoulder height does not meaningfully drive progression — and disuse reliably produces stiffness, deconditioning, and in some cases a frozen shoulder layered on top of the original problem. Protect it from the specific provocative positions above. **Do not put it in a sling and wait.**

MEDICATION, USED SENSIBLY

A short course of an anti-inflammatory, if your physician agrees it's appropriate for you, can be genuinely useful in the first two weeks — not because it heals anything, but because it lets you sleep and lets you perform the mobility work. Ice after activity for 15 minutes helps some people and does nothing for others; it's harmless either way. Neither is a treatment. They are tools that let the actual treatment happen.

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10 — THE SIX-WEEK PROGRAM

Injections and biologics, honestly

This is the area where patients are sold the most and told the least.

CORTICOSTEROID INJECTION

A well-placed cortisone injection into the subacromial space is a legitimate tool. It reduces bursal inflammation and can produce meaningful pain relief for weeks to months. Its best use is specific: to create a window in which you can actually do the rehabilitation. If pain is preventing you from performing Phase One, an injection that lets you complete the program is a reasonable trade.

What it is not is a treatment in its own right, and there is a real cost to repeating it.

THE NUMBER THAT SHOULD GIVE YOU PAUSE

Repeated corticosteroid exposure has documented adverse effects on tendon tissue, including reduced cell viability and altered collagen — and in clinical studies, multiple injections before a rotator cuff repair have been associated with higher retear rates and higher rates of revision surgery, particularly when given within roughly six months of the operation.

My practical rule: one injection, occasionally two, spaced well apart. If you find yourself being offered a third or fourth in a year, the injections have become a way of avoiding a decision rather than a way of making one.

PLATELET-RICH PLASMA AND RELATED BIOLOGICS

PRP has a plausible mechanism, a large commercial industry behind it, and a genuinely mixed evidence base. For rotator cuff tendinopathy and partial tears, some trials show benefit over placebo and others do not; the preparations vary enormously between clinics, which is part of why the literature conflicts. It does not close full-thickness tears.

If you want to try it, a reasonable position is: after you have completed a real rehabilitation program, not instead of one, and with clear-eyed expectations about what the evidence supports. It is typically not covered by insurance.

"STEM CELL" INJECTIONS

Be careful here. Most commercially marketed products sold under this name in shoulder clinics contain few or no living stem cells by the time they're injected. Marketing in this space frequently outruns both the science and, in some cases, regulatory approval. There is no high-quality evidence that any such injection repairs a torn rotator cuff tendon. If you are being asked to pay thousands of dollars out of pocket for a shoulder injection, ask what randomized evidence supports it for your specific diagnosis and treat a vague answer as an answer.

HOW I THINK ABOUT THE WHOLE CATEGORY

Injections manage symptoms. They don't change anatomy. That's fine — symptom management is often exactly what you need, and a shoulder that stops hurting is a real win whether or not the hole closed. Just be clear with yourself about which one you're buying, and don't let a series of injections quietly consume the window in which your tear was still repairable.

Five things that decide whether this works

These matter as much as the exercises, and unlike your tear, all five are things you can change starting today.

01 Nicotine

Nicotine constricts the small vessels that supply an already poorly vascularised tendon. Smoking is associated with a higher prevalence of cuff tears, larger tears, worse healing after repair, and worse outcomes generally. This applies to vaping, patches, gum, and pouches — the vasoconstriction is from the nicotine, not the smoke. **If you do one thing on this list, do this one.**

02 Blood sugar

Diabetes is a strong, well-documented risk factor for rotator cuff disease and for poor outcomes in treating it. Elevated glucose drives the accumulation of advanced glycation end-products in collagen, which makes tendon stiffer and more brittle. Diabetic patients also have markedly higher rates of stiffness and frozen shoulder. Getting glycemic control tight is a shoulder intervention, not just a metabolic one.

03 Sleep

Two directions at once. Poor sleep amplifies pain perception and impairs tissue recovery; shoulder pain destroys sleep. It is a loop, and breaking it is high-yield. Fix the position (see Phase One), address the night pain aggressively in the first two weeks, and treat sleep as part of the treatment rather than a casualty of it.

04 The rest of your body

Higher body mass is associated with more rotator cuff disease and with muscle atrophy in the setting of cuff tears. A stiff thoracic spine forces the shoulder blade into a position that narrows the space the cuff works in — which is why thoracic mobility work belongs in a shoulder program. General deconditioning means every task demands a higher percentage of your available strength. None of this is glamorous and all of it compounds.

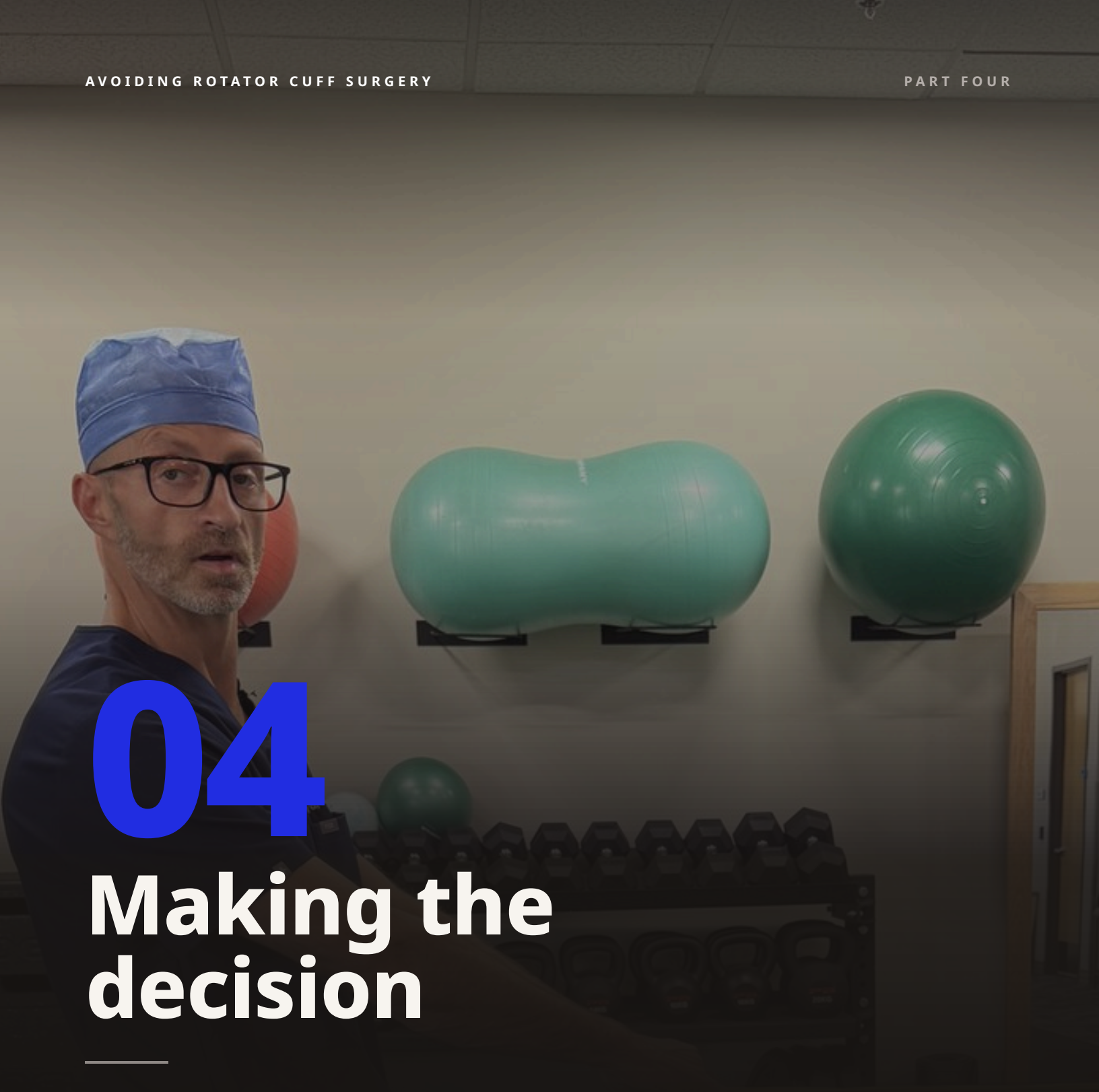
05 Protein and general nutritional status

You are attempting to build muscle and adapt connective tissue over six weeks. Under-eating protein makes that measurably harder, and it is extremely common in adults over sixty. Aim for adequate protein

distributed across the day rather than concentrated in one meal. Vitamin D deficiency is common and has been associated with poorer tendon healing; it's inexpensive to check and inexpensive to correct. Chapter Sixteen sets out the full perioperative version of this.

THE UNCOMFORTABLE SUMMARY

Two patients with identical MRIs can have completely different outcomes from identical programs. The variables above explain a large share of that difference. If you are a smoker with uncontrolled diabetes sleeping four hours a night, the exercises alone are not going to carry you — and it isn't your tear's fault.



04

Making the decision

Some shoulders should never have been put on a waiting trial. And over a long enough horizon, the evidence changes shape. Here is how to read both.

- When repair comes first
- Ten and fifteen-year outcomes
- The week-six worksheet
- Questions to ask your surgeon

When repair is the front-line treatment

Everything up to this point has been about who can reasonably avoid an operation. This chapter is about who should not try — where repair is the first treatment, not the fallback.

There are two situations where I do not recommend a six-week trial. Not because therapy couldn't help the symptoms, but because the decision being made is about the next twenty years of that shoulder, and waiting spends something you cannot get back.

1. A true acute traumatic full-thickness tear

All four of these need to be present:

- An identifiable event — a fall, a forceful pull, a dislocation, a catch under load. You can name the day.
- A shoulder that was functioning normally before it.
- Immediate, obvious loss of strength — not pain that gradually built over the following weeks.
- A full-thickness tear confirmed on imaging.

This is a different disease from the degenerative tear this guide has mostly been about. The tendon was healthy and got disrupted; it did not fray and give way. In series of acute traumatic full-thickness tears, non-operative treatment fails in a substantial proportion of patients — on the order of half or more — with involvement of more than one tendon among the strongest predictors of failure. Repair performed within the first weeks to few months generally produces better function than repair delayed well past that window.

The tendon end retracts, the muscle begins converting to fat, and the tissue quality that made this an easy repair degrades month by month. A tear that was straightforward at six weeks can be a considerably harder operation at six months, with a lower chance of healing.

> **THE WINDOW**
>
> For a true acute traumatic tear, think in weeks. Get a shoulder specialist opinion promptly rather than starting a self-directed program. This is the scenario where the cost of "let's watch it for a few months" is highest and least recoverable.

2. A full-thickness tear in a younger patient

A complete tear in someone under sixty is a fundamentally different proposition from the same tear in someone over seventy, even when the MRI images look similar. Three reasons:

THE TIME HORIZON

You are asking that shoulder to work for another thirty or forty years. Natural history that plays out slowly — tear enlargement, fatty infiltration, eventual cuff tear arthropathy — has time to run its full course in a way it simply doesn't in an eighty-year-old.

TENDON QUALITY

Younger tendon heals better. Repair success rates are higher, and the operation you would get today is a better operation than the one available after another decade of degeneration.

DEMAND

Younger patients are generally asking more of the shoulder — work, sport, lifting — and are less willing to accommodate a permanent strength deficit than someone whose demands are lower.

WHERE I DRAW THE LINE, AND IT IS A JUDGMENT CALL

Under 60 with a full-thickness tear, I lean strongly toward repair as front-line treatment rather than a therapy trial. Under 50, I consider it unequivocal. A complete rotator cuff tear in a patient in their forties is not a shoulder I want to watch enlarge.

I want to be clear that this is my clinical position, not a settled guideline — age thresholds in this literature are debated, and the randomized evidence in Chapter Thirteen is what informs it. But when I weigh a decade or two of tear progression against the risk of an operation in someone with healthy tendon, the math is not close.

OTHER SITUATIONS THAT OVERRIDE A SIX-WEEK TRIAL

GET EVALUATED NOW RATHER THAN STARTING A PROGRAM

- **Pseudoparalysis.** You cannot actively raise the arm, but someone else can lift it for you and you can hold it there. The cuff has failed mechanically.
- **Progressive weakness over weeks**, with or without pain. Weakness that is worsening is a different signal from pain that is worsening.
- **A subscapularis tear with functional loss** — difficulty tucking in a shirt, pushing up out of a chair, reaching behind your back.
- **Documented tear enlargement** between two scans, or documented progression of fatty infiltration. The clock is visibly running.
- **Borderline repairability already** — significant retraction with early fatty change. Months of therapy can convert a repairable tear into one that isn't.

THE NATURAL HISTORY, STATED PLAINLY

Degenerative tears do progress. In a long-running prospective study following people with asymptomatic degenerative tears, roughly half showed tear enlargement over a median of about five years, with a median time to progression of just under three years. Full-thickness tears enlarge at a rate of roughly a fifth at two years and about

half at five years; partial tears progress more slowly. Tear enlargement correlates both with the onset of pain and with progression of muscle degeneration.

Two conclusions follow, and they point in different directions:

- **Progression is real.** A tear is not a static finding, and "watch it forever" is not a strategy.
- **Progression is slow.** These are multi-year timelines. For most degenerative tears in older patients there is time for a properly conducted trial without burning bridges — which is what the specialists who generated this natural-history data conclude.

> **HOW I FRAME THIS IN CLINIC**
>
> Six weeks costs a sixty-eight-year-old with a small degenerative tear essentially nothing. Six weeks costs a forty-six-year-old with an acute traumatic tear real tendon quality. Same number, completely different price. The question is never just "can therapy help this?" — it's **"what am I spending while I find out?"**

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13 — MAKING THE DECISION

The long-term picture: ten and fifteen years out

Two Level I studies followed patients for well over a decade and appear to reach opposite conclusions. Understanding why they don't is the most useful thing in this guide.

Almost every argument about rotator cuff surgery is conducted on a two-year horizon, because that is where most of the literature stops. Two trials went much further. They are the most important evidence you can bring to this decision, and they deserve to be read together.

THE NORWEGIAN TRIAL: FIFTEEN YEARS OF RANDOMIZED FOLLOW-UP

Moosmayer and colleagues in Norway randomized 103 patients with full-thickness rotator cuff tears no larger than 3 cm to either primary tendon repair or physiotherapy, with the option of secondary surgery if physiotherapy failed. A blinded assessor measured shoulder function at six months and at one, two, five, ten, and fifteen years. Eighty-one percent of the original cohort was still being followed at fifteen years — an extraordinary retention rate for a trial of this length.

At the two-year mark, the difference between the groups was small. That is the finding most people have heard, and it is where most trials end. **The gap widened with time.**

+11.8

Constant score points in favour of primary tendon repair at fifteen years, alongside a 13.9-point advantage on the ASES score and a 1.8 cm advantage on a 10 cm pain scale. Pain-free abduction and flexion were also better by 16° and 22° respectively.

16 → 32 mm

In the 26 tears that were never repaired, average tear size roughly doubled — from 16.2 mm to 31.6 mm across the front-to-back dimension.

15 of 51

patients assigned to physiotherapy crossed over to surgery during the study. They were analysed in their original group, which if anything understates the difference.

The authors' conclusion is unambiguous: outcomes from primary tendon repair remained superior to physiotherapy out to fifteen years, supporting repair as the primary treatment for small-to-medium-sized tears. Notably, general health scores on the SF-36 showed no significant differences between groups — the advantage is specific to the shoulder, not to overall wellbeing.

SO HOW DOES THIS SQUARE WITH THE TEN-YEAR MOON DATA?

Chapter Seven showed that in the MOON cohort, roughly seven in ten patients with full-thickness tears never had surgery across ten years, and those who improved with therapy did not decline over that decade. That sounds like the opposite result. It isn't, and the difference is structural.

	MOON COHORT (10 YEARS)	NORWEGIAN TRIAL (15 YEARS)
Design	Prospective cohort. Everyone started with therapy.	Randomized controlled trial. Head-to-head from day one.
Question asked	Of people who try therapy, how many end up needing surgery — and do the successes hold?	If you randomly assign repair or therapy at the outset, which does better?
Who it describes	Largely the therapy responders, followed forward.	Everyone, including the people therapy was going to fail.
Tear type	Atraumatic, degenerative, full-thickness.	Full-thickness, up to 3 cm.
Headline	Non-operative success, once achieved, is durable.	Repair pulls ahead over time, and unrepaired tears grow.

Both are true at once. If therapy works for you, it tends to keep working — that is the MOON finding and it is real. But across a whole population of tears, and given enough years, repair produces better shoulder function, and the tears left alone get bigger. The two-year literature simply cannot see that second effect, because two years isn't long enough for it to appear.

THE REFRAME THAT FOLLOWS

The right question is not “surgery or therapy?” in the abstract. It is **“how many years do I need this shoulder to work?”** Over a five-year horizon, a well-executed therapy program is a genuinely competitive option for a degenerative tear. Over a twenty- or thirty-year horizon, the Norwegian data says the advantage goes to repair — and the tear you decided to live with is roughly twice the size by the end of it.

This is the evidence behind the age threshold in Chapter Twelve. A seventy-five-year-old with a small degenerative tear is making a ten-year decision, and the case for a therapy trial is strong. A forty-eight-year-old is making a thirty-five-year decision, and they are being asked to sit inside exactly the window in which the curves separate.

WHAT I'D WANT YOU TO TAKE FROM THIS

I am not trying to walk back the six-week program — I believe in it, and for most people reading this it is the right first move. But you should know that the "therapy does just as well" message circulating online rests almost entirely on short-horizon data, and that the longest randomized follow-up we have does not support it for small and medium tears. Anyone who tells you this question is settled, in either direction, has not read both papers.

The week-six decision worksheet

Complete this at the end of week six, using your tracking log rather than your memory. Be honest — the point is to get a real answer, not a comfortable one.

> **IF YOU REPEATED A PHASE**
>
> Score this at the end of your sixth week of actual training, not six weeks from the date you started. If you spent an extra week in Phase One or Phase Two because you hadn't met the criteria to move on, you are on week seven or eight of the calendar and that is fine — it is the same six weeks of work. Scoring yourself partway through the program will read as a non-response when it is really a progression that took longer, and that is a bad reason to end up in an operating room.

SECTION A — RESPONSE TO THE PROGRAM

Compare week six against week one and tick one box per line.

SINCE STARTING THE PROGRAM…	CLEARLY BETTER · 2	SLIGHTLY BETTER · 1	NO CHANGE OR WORSE · 0
My worst daily pain is lower than it was at the start.	☐	☐	☐
I am sleeping better — fewer wake-ups from shoulder pain.	☐	☐	☐
I can reach further, or reach with less pain, than at week one.	☐	☐	☐
I am using a heavier band or weight than I started Phase Two with.	☐	☐	☐
At least one specific daily task that bothered me is now easier.	☐	☐	☐

SECTION B — DID YOU ACTUALLY DO THE PROGRAM?

	YES	NO
I completed at least 80% of prescribed sessions across the six weeks.	☐	☐
I progressed the resistance rather than staying on the same band throughout.	☐	☐
I removed the provocative activities in Chapter Nine.	☐	☐

SECTION C — OVERRIDES

Any single “yes” here outweighs your Section A score.

	YES	NO
My weakness is worse than it was six weeks ago.	☐	☐
I have lost the ability to raise the arm actively.	☐	☐
My tear was traumatic and I skipped Chapter Twelve.	☐	☐
My imaging shows significant retraction or fatty infiltration.	☐	☐

READING YOUR RESULT

SECTION A SCORE	WHAT IT MEANS	WHAT TO DO
7–10	You are a responder. This is the group in the MOON cohort whose outcomes held for a decade.	Continue the program. Progress load. Reassess at three months.
4–6	Partial response. Real but incomplete — and still trending the right way.	Continue another six weeks before deciding. Consider adding supervised therapy.
0–3, Section B all yes	A genuine non-response to a properly executed program. This is meaningful information.	Get a specialist opinion. Bring this worksheet and your log.
0–3, any Section B no	You don't yet know what your shoulder can do, because the program wasn't the program.	Repeat six weeks properly, ideally with a therapist, before concluding anything.
Any Section C yes	Score is not the deciding factor.	**Specialist evaluation now**, regardless of how the rest looks.

Questions to ask your surgeon

Print this page and take it with you. A good surgeon will welcome every one of these.

01 Is my tear degenerative or traumatic, and what makes you say so?

This determines nearly everything downstream. If the answer is vague, the plan is being built on sand.

02 What is my tear's size and retraction, and what is the fatty infiltration grade?

These are the numbers that predict whether a repair will heal. You are entitled to know them.

03 Is my subscapularis involved?

Frequently underreported, and it changes the force-couple calculation substantially.

04 If I wait six weeks and do a proper rehabilitation program, what do I risk?

In most degenerative tears the honest answer is: very little. If your surgeon says something different, ask what specifically about your shoulder makes it different.

05 What happens to this tear if I never have surgery?

A direct question about natural history. You should get a direct answer about your anatomy, not a generality.

06 If you repair it, what is the chance it heals — for a patient with my age, tear size, and tendon quality?

Healing rates vary widely with these variables. A surgeon who quotes you a single number for all comers isn't individualizing.

07 What does recovery actually involve?

Sling duration, driving, sleeping, time off work, total rehabilitation timeline. Rotator cuff recovery is measured in months, not weeks, and this surprises people badly.

08 What's the plan if the repair doesn't heal?

Retears happen even in good hands. Knowing the fallback before you start is worth a great deal.

09 Are you fellowship-trained in shoulder surgery, and how many of these do you do a year?

Volume and subspecialization correlate with outcomes across orthopaedics. It is a reasonable question and not a rude one.

10 Would you consider it reasonable for me to get a second opinion?

The answer tells you a great deal about who you are dealing with.

ON SECOND OPINIONS

I give second opinions and I ask for them. Rotator cuff decisions sit in a genuinely gray zone where experienced surgeons disagree about the same images, and the cost of an unnecessary operation — months of rehabilitation, real risk, real expense — is high enough to justify another set of eyes. Nobody who is confident in their recommendation is threatened by you getting one.

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16 — MAKING THE DECISION

If you do need surgery, what actually changes the outcome

For a meaningful minority of readers, an operation is the right answer. Here is what matters if that's you.

Nothing in this guide is an argument against rotator cuff repair. It is a good operation with a long track record, and in the right patient it does something no amount of therapy can: it restores the anatomy before the muscle is lost.

If you get there, these are the variables that move the needle.

TENDON QUALITY AND TIMING

Repairs heal better in healthier tendon with less retraction and less fatty change. That is largely determined by when you have the operation relative to the natural history of your tear — which is why the red flags in Chapter Twelve matter so much. **The best version of your operation is usually the earliest one that was actually indicated.**

THE THINGS YOU CONTROL BEFORE THE OPERATION

- **Stop nicotine completely**, ideally weeks beforehand. This is the most powerful modifiable predictor of healing.
- **Get blood sugar controlled.** Diabetic patients have higher retear and stiffness rates, and glycemic control before surgery is not a formality.
- **Go in with motion.** A stiff shoulder before surgery is a stiff shoulder after it. Keep doing the Phase One mobility work right up until the operation.
- **Go in strong.** The scapular and remaining-cuff work you did in your six weeks is not wasted if you end up having surgery. It shortens your recovery.
- **Avoid an injection in the months right before.** Multiple pre-operative corticosteroid injections, especially within six months of surgery, have been associated with higher retear and revision rates.
- **Feed the repair, and test for what's missing.** You are asking a tendon to grow back onto bone. That is a construction project, and it needs both materials and a site survey. See below.

NUTRITION AROUND SURGERY

This is the most overlooked variable in rotator cuff recovery, and one of the few that costs nothing and carries almost no risk. Your body's requirement for protein roughly doubles after surgery — at exactly the point when appetite drops and activity falls away. The work starts before the operation, not after it.

WHAT TO DO

PROTEIN

Increase your protein intake in the weeks before surgery, and keep it up afterwards. Spread it across the day rather than loading one meal.

WHAT TO DO

CARBOHYDRATE DRINK

Drink a carbohydrate beverage the night before surgery. This is standard in my practice. Both protein loading and pre-operative carbohydrate have been shown to improve speed of recovery.

WHAT TO HAVE TESTED BEFOREHAND

I test three things before surgery, because each is common, each is correctable, and each has been tied to how well a rotator cuff heals.

TEST 01

VITAMIN D

Important for tendon and bone. Deficiency affects roughly a third of people in the United States, and low levels have been correlated with higher infection risk and with failure of rotator cuff healing. If yours is low, it can be corrected with high-dose treatment before surgery.

TEST 02

ALBUMIN

A protein found in your blood and a marker of nutritional status. Low levels are associated with a higher risk of complications — and at least one study found that risk can be reduced simply by identifying it beforehand and increasing protein intake.

TEST 03

LIPID PANEL

Elevated cholesterol has been associated with failure of rotator cuff healing. If you haven't had a recent panel, get one; lowering it before surgery may help the repair and will certainly help everything else.

Blood sugar belongs on this list too. Elevated glucose after surgery is common even in people without diabetes — estimates run above 50% of cases, driven by the stress of the operation itself — and those episodes raise complication risk. Exercise, a high-protein diet and the pre-surgery carbohydrate drink all help blunt it.

THRIVE PROTOCOL

Getting all of this right on your own is harder than it sounds, so I built a surgical nutrition program around the perioperative window specifically — protein and micronutrient support loaded in the days before surgery, the carbohydrate drink for the night before, and continued support through the healing phase.

mythriveprotocol.com

Disclosure: I am the founder of Complete Surgical Nutrition, which makes Thrive Protocol. Everything above matters whether or not you use it, and most of it can be done with ordinary food, an inexpensive supplement and a conversation with your physician about lab testing.

SET YOUR EXPECTATIONS CORRECTLY

Rotator cuff repair is not arthroscopic knee surgery. You are asking a tendon with limited blood supply to grow back onto bone. That takes months, during which the repair is protected and you do essentially nothing with the arm. A typical course involves a sling for four to six weeks, passive motion first, active motion later, and strengthening beginning only around the three-month mark. Most patients are still improving at a year.

Patients who understand that timeline before surgery do far better with it than patients who discover it in week three.

NOT SURE WHICH GROUP YOU'RE IN?

The most common reason people end up in the wrong treatment is that nobody sat down with their actual images and explained what they showed. If you have an MRI and a recommendation you're not sure about, I offer a remote MRI review and second opinion — you send your imaging, I review it and tell you what I see, including when I think an operation isn't warranted.

oregonshoulder.com/services/mri-review-shoulder-opinion

TOOL

Six-week tracking log

Fill this in at the end of each week. At week six you will use it for the worksheet in Chapter Fourteen — and you will be glad you have numbers instead of impressions.

> Write the date down. The single most common way non-operative treatment goes wrong is that it never ends and never gets evaluated — it just quietly becomes six months of not deciding. If you repeat a phase, move the date and write the new one in. Repeating a phase is part of the program; drifting without a date is not.

WEEK	WORST PAIN (0–10)	NIGHT WAKE-UPS	BAND / WEIGHT USED	TASK THAT GOT EASIER	SESSIONS COMPLETED
Baseline					
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					
Week 6					
Extra week					
Extra week					

MY NUMBERS FROM MY MRI REPORT

- **Tear size (AP × ML)**
- **Retraction**
- **Goutallier grade**
- **Subscapularis involved?**
- **Traumatic or degenerative?**

THE DATE I WILL STOP AND EVALUATE

- **Week six falls on**
- **Phases repeated (if any)**
- **Revised evaluation date**

ABOUT

Where to go from here



Off the clock: obstacle racing, shoulders and all.

Patrick J. Denard, MD is a fellowship-trained orthopaedic shoulder surgeon and the founder of the Oregon Shoulder Institute in Medford, Oregon. He has authored more than 300 peer-reviewed publications on shoulder surgery, holds six patents in the field, and directs a shoulder surgery fellowship training the next generation of specialists. The Oregon Shoulder Institute ranks second in North America for rotator cuff repair volume.

300+
peer-reviewed publications

6
patents in the field

#2
in North America for rotator cuff repair volume

REMOTE MRI REVIEW AND SECOND OPINION

Get a second read on your images

If you have shoulder imaging and a recommendation you want a second read on, you can send your MRI for review without travelling to Oregon. You'll get a direct assessment of what your images show, what your options are, and whether an operation is warranted — including when I think it isn't.

oregonshoulder.com/services/mri-review-shoulder-opinion

MORE PLAIN-LANGUAGE SHOULDER EDUCATION

WEBSITE

OREGONSHOULDER.COM

Articles and patient resources.

YOUTUBE

@PATRICKDENARDMD

Common shoulder conditions and treatments, plus the full rehab exercise library — made for patients.

INSTAGRAM

@PATRICKDENARDMD

Disclaimer. This guide is for educational purposes only and is not a substitute for personalized medical advice. It does not establish a physician–patient relationship and cannot account for your individual anatomy, imaging, history, or examination. Always consult your own physician or surgeon regarding your specific situation.

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Figures cited in the text reflect the published results of the studies above. Individual outcomes vary; population data cannot predict what will happen in any single shoulder.