

REHABILITATION PROTOCOL

Anatomic Shoulder Replacement

INCLUDING PYROCARBON HEMIARTHROPLASTY

Your guide to recovery



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WELCOME

Your guide to recovery

following anatomic shoulder replacement or pyrocarbon hemiarthroplasty

This rehabilitation guide has been carefully developed to support your recovery following surgery and to help you achieve the best possible outcome.

It outlines the recommended rehabilitation pathway, providing guidance for your recovery at home and serving as a resource for you and your physiotherapist throughout the rehabilitation process.

Recovery is a gradual and individual journey. While this protocol provides a structured framework, your rehabilitation may be adjusted according to your specific procedure, progress and goals.

We encourage you to work closely with your physiotherapist and follow the advice provided by Dr Harry Constantin and his team during consultations.

We are committed to supporting you throughout your recovery and helping you return safely and confidently to the activities that matter most to you.



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Anatomic replacement and pyrocarbon hemiarthroplasty

This protocol is for both operations — the rehabilitation is the same

Anatomic total shoulder replacement

An anatomic replacement recreates the normal shape of the shoulder. The worn humeral head (the ball) is replaced with a smooth metal ball, and the arthritic socket (the glenoid) is resurfaced with a durable, high-density polyethylene (plastic) component. It relies on a healthy, functioning rotator cuff to move and stabilise the joint. As the plastic socket can wear or loosen over many years, heavy lifting and high-impact activities are best avoided to protect the joint long term.

Pyrocarbon hemiarthroplasty (Hemi-PYC)

A hemiarthroplasty replaces only the ball. **The glenoid (the socket) is not resurfaced with a polyethylene component** — your own socket is kept. Pyrocarbon is an advanced carbon material with an elasticity close to that of bone and a very smooth, low-friction surface. It causes less wear of the natural socket than traditional metal implants, causes minimal inflammatory response, and there is no plastic component to wear or loosen.

- It is reserved for younger, active patients with arthritis, or those whose work or lifestyle involves sport and heavy lifting
- By preserving your own glenoid it keeps future options open, and avoids the activity restrictions of a plastic socket or a reverse replacement

What matters for both

- The rotator cuff must be normal
- The subscapularis tendon at the front of the shoulder is released to reach the joint and repaired at the end of the operation. Recovery is slow — and needs to be — so that it can heal
- Recovery is not a fast process: your shoulder continues to improve for 12–24 months

Time off and getting back to normal

Sling: at least 6 weeks. **Desk job:** at least 6 weeks off. **Driving:** none for 8–12 weeks, depending on your rehabilitation and pain. **Heavy labour:** 6 months off.

This protocol is designed around the consensus statement of the American Society of Shoulder and Elbow

Therapists: Kennedy JS, Garrigues GE, Pozzi F, Zens MJ, Gaunt B, Phillips B, Bakshi A, Tate AR. The American Society of Shoulder and Elbow Therapists' consensus statement on rehabilitation for anatomic total shoulder arthroplasty. J Shoulder Elbow Surg. 2020 Oct;29(10):2149–2162. doi: 10.1016/j.jse.2020.05.019. Epub 2020 Jun 10. PMID: 32534209; PMCID: PMC8262512.

Your recovery in *four phases*

This protocol is designed to guide you and your physiotherapist through your recovery. Your treatment may be adjusted to meet your individual needs. Never push through sharp pain, and always keep your exercises within your external rotation limits. **Repeat your exercises 3 times a day, 5 days a week.**

1	Protection & Early Motion	WEEKS 0-4
2	Range of Motion Only	WEEKS 5-8
3	Range of Motion Optimisation & Early Strengthening	WEEKS 9-12
4	Conditioning	3-6 MONTHS +

Key principles



Follow the movement limits set by Dr Constantin – particularly external rotation



Avoid pain and sharp, sudden movements



Focus on control, posture and gradual progression – not speed



Regular physiotherapy reviews keep your recovery safe and steady

Remember

- **Individualised recovery** – the most important part of this surgery.
- **Gentle movement** – range of motion should be pain-free and as tolerated; never force end range.
- **Healing takes time** – timelines are guides and may need extending.
- **Protect the repair** – avoid jerky, lifting or pulling movements early; respect healing limits.

Protect your external rotation



Do not stretch external rotation

Your subscapularis tendon was repaired and needs time to heal. Never go beyond the limit for your stage.

Measured outwards from internal rotation, with your hand resting on your abdomen:



Your safe range Viewed from above — elbow at your side, forearm moving outwards from your abdomen

These are **upper limits, not targets**. Only move as far as is comfortable.

Things to avoid — protect your subscapularis



No hand behind your back

Weeks 0-6. From week 7 gently, to the sacrum at first



No external rotation with the arm out at 90°

Weeks 0-6 — the position that strains the repair most



No reaching backwards or lifting the arm out to the side

Weeks 0-6



No resisted internal rotation or weight through your hands

Until 12 weeks — includes isometrics and kneeling on all fours



No swimming, baths or soaking the wound

Until after 4 weeks. Swimming from 12 weeks



No full return to sport

Before 6 months, so the subscapularis can mature

Protection & Early Motion

WEEKS 0-4

GOALS

Protect the subscapularis repair. Control pain and swelling. Maintain movement in the elbow, wrist and hand.

PRECAUTIONS

- ◆ Sling full time, except in the shower (keep the arm by your side). Wear it at night until week 6
- ◆ When out of the sling at home, keep your elbow at your side and use the arm only for the most basic tasks
- ◆ No active shoulder movement – in particular no external rotation
- ◆ No hand behind your back, no reaching backwards and no lifting the arm out to the side
- ◆ No internal rotation against resistance – including isometrics, and pushing up or taking weight through your hand
- ◆ Active-assisted elbow, wrist and hand exercises only
- ◆ Keep the wound dry and intact for 2 weeks. No swimming, baths or soaking until after 4 weeks

PROGRESSION

- **Weeks 0-2:** gentle pendulars and scapula setting from day 1 after surgery. No passive or active shoulder range of motion. No external rotation.
- **Weeks 3-4:** active-assisted shoulder elevation below 90°, lying on your back with the shoulder in internal rotation. External rotation from the abdomen to neutral only – not beyond.

Range of Motion Only

WEEKS 5-8

2

GOALS

Wean the sling by week 6. Increase active-assisted range of motion.

PRECAUTIONS

- ◆ Avoid weight bearing through the arm, including kneeling on all fours
- ◆ No resisted internal rotation or internal rotation isometrics
- ◆ No hand behind your back, and no external rotation with the arm out at 90°, until week 7

PROGRESSION

- **Weeks 5-6:** active-assisted range of motion standing. Shoulder flexion with a stick to 90° maximum. External rotation to 15° only.
- **Weeks 7-8:** active-assisted range of motion to 120°. External rotation to 30°. You can gently start taking your hand behind your back — to the sacrum at first. External rotation with the arm out to the side can begin gently, within the limit for your stage (60° maximum).

Range of Motion Optimisation & Early Strengthening

WEEKS 9-12

GOALS

Improve active range of motion.

PRECAUTIONS

- ◆ Avoid sudden or heavy loads
- ◆ Avoid overhead pushing exercises
- ◆ No resistance or weight-bearing (closed-chain) exercises until 12 weeks

PROGRESSION

FORWARD FLEXION

150°

EXTERNAL ROTATION

45°
maximum

- Supine shoulder abduction
- Arm slide stretches on a table
- Active internal and external rotation with the arm at your side, against gravity only (no bands yet)

Conditioning

3-6 MONTHS +

4

GOALS

Return to functional activities and regain strength.

PRECAUTIONS

- ◆ Avoid heavy overhead lifting unless cleared by Dr Constantin
- ◆ Avoid pushing resistance exercises (bench press and shoulder press)

PROGRESSION

From 12 weeks, light Theraband work in internal and external rotation can start. Increase resistance gradually and introduce sport- or function-specific drills. Light bent-over rows and seated rows are fine. Planks and yoga are fine from 12 weeks.

WEIGHT TRAINING

Keep weights below shoulder level and in front of your body. Use lighter weights with more repetitions. No bench press, wood chopping or sledgehammer work.

WORK & SPORT

Swimming from 12 weeks, building up gradually. Golf: chipping and putting from 4 months, full swing from 6 months. No full return to sport before 6 months, so the subscapularis can mature.

MAINTENANCE

Long-term shoulder strengthening and control.

Questions about your recovery?

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