THE ROTATOR CUFF DILEMMA

RETHINKING SHOULDER HEALTH IN COMPETITIVE SWIMMERS

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PAIN FREE

BUT STILL BREAKING DOWN

- Shoulder region accounts for 31 – 39% of all swimming injuries
- Up to 91% of swimmers report of shoulder pain/ injury
- Usually due to repetitive strain/ overuse injuries in swimming
- Pain coming back during peak load

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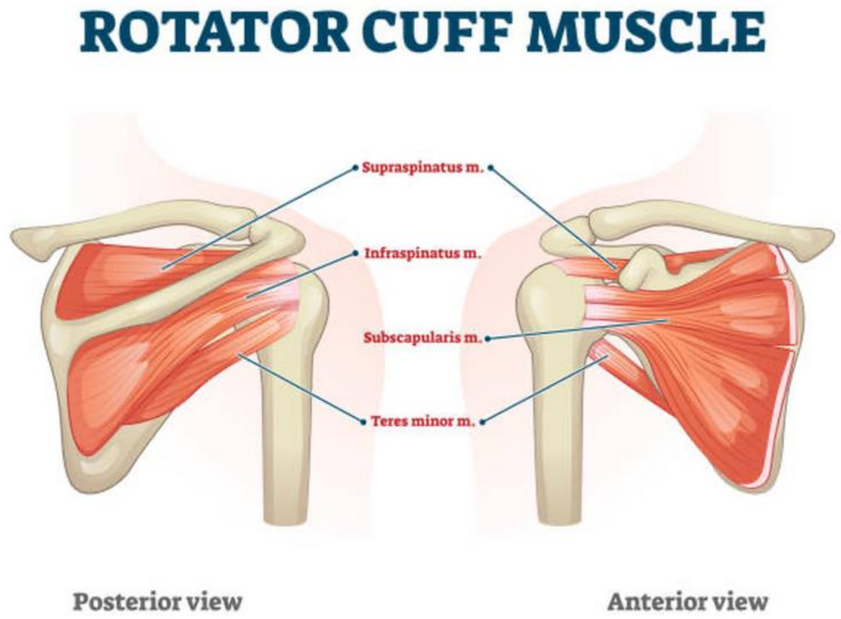
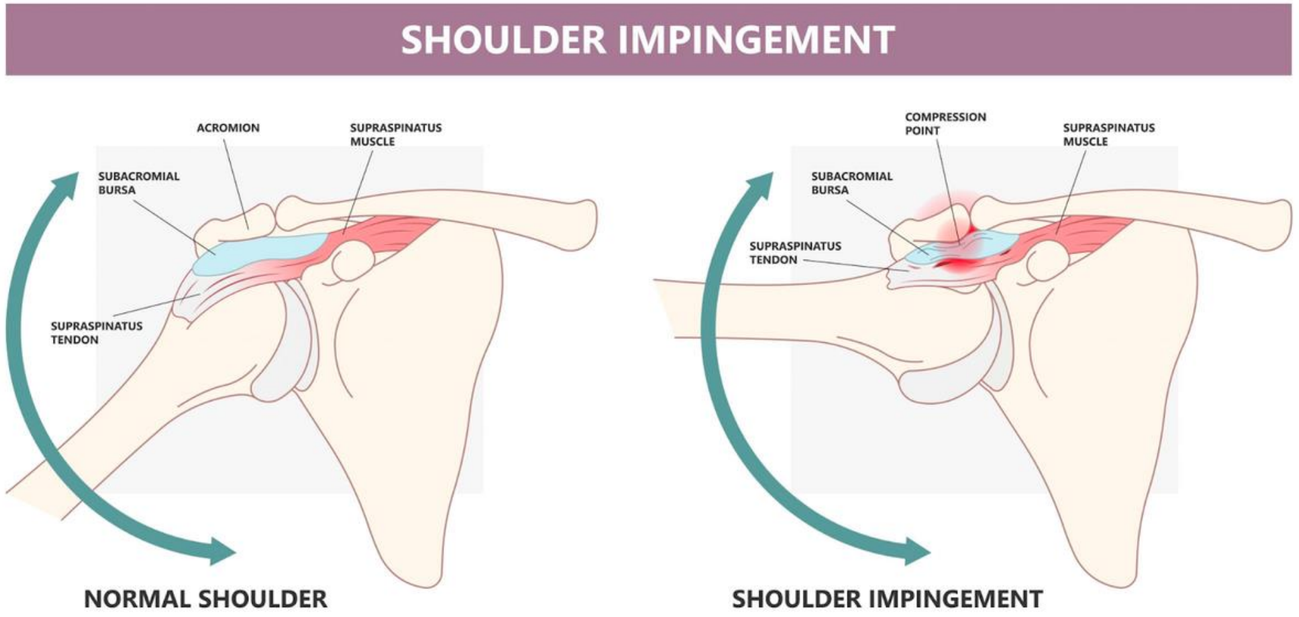
COMMON CAUSES OF SHOULDER PAIN

- Rotator cuff tendinopathy
- Long head biceps tendinopathy
- Impingement against the anterior third of coracoacromial arch.





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OVERUSE

#1 CAUSE OF MISSED TRAINING IN ELITE SWIMMERS

- Thousands of overhead strokes → constant cuff stress
- Breakdown happens when load > capacity
- Training load stays high to remain competitive

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TRAIN HARD
AND RISK

PE

ND
G
PERFORMANCE
GAINS

It’s about lasting in high-performance sport

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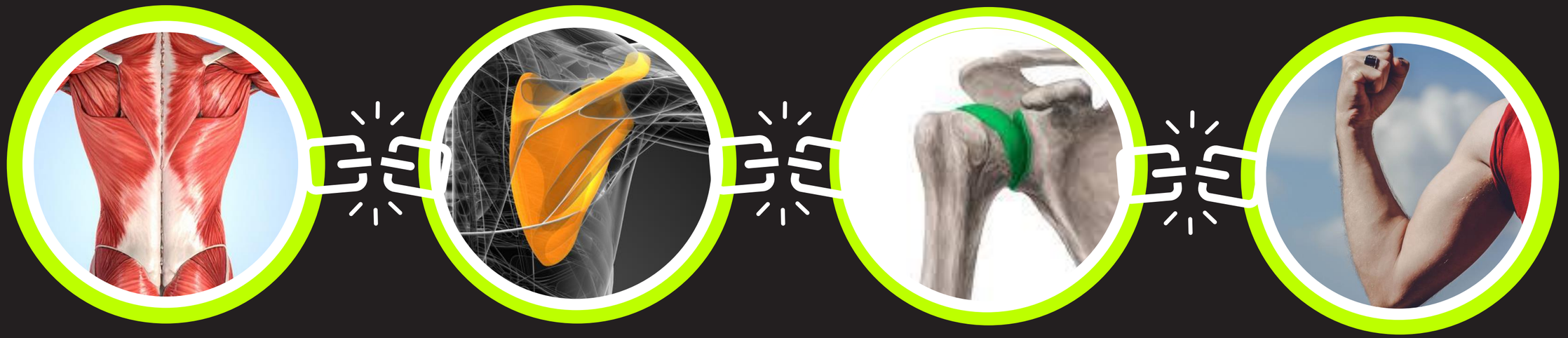
THE KINETIC CHAIN BREAKDOWN



TRUNK

SCAPULA

GHJ

UPPER LIMB

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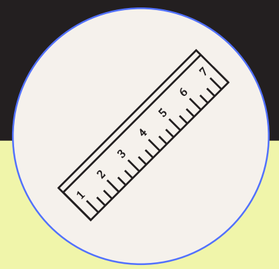

MOBILTY

SHOULDER
TRUNK

Are there any deficits in shoulder joint or global mobility?

Does the athlete have adequate mobility for performance?

STRENGTH

SHOULDER
ISOLATED TEST

Is capacity limited on testing?

Is there a priority identified from testing?

FORCE

PEAK FORCE TESTS
RFD TESTS
POWER TESTS

Are there any deficits in force or rate of force production?

Do we have a clear system of monitoring?

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SHOULDER ABD + INTERNAL ROTATION

SHOULDER INTERNAL ROTATION

SHOULDER EXTERNAL ROTATION

COMBINE ELEVATION

THROACIC ROTATION

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SHOULDER ISOLATED STRENGTH TEST

Why Test?

- Isolates true rotator cuff output
- Supine position with scapular support = reliable data

What We Test:

- Internal Rotation (Subscap, Pec, Lats) → Propulsion
- External Rotation (Infra, Teres Minor) → Deceleration & control

Why It Matters:

- Swimmers often IR-dominant, ER underdeveloped
- Poor ER:IR ratio = injury risk
- Strength data = rehab tracking, RTP decisions, safe load progress

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ASH

ATHLETIC SHOULDER TEST

MORE THAN JUST STRENGTH

- Designed to assess isometric shoulder strength and stability
- Measures isometric force at different shoulder angles (90°, 135°, 180°). Ideal for swimmers due to its long-lever, overhead load specificity
- Identifies deficits in dynamic shoulder control under load.
- Helps monitor asymmetries or post-injury deconditioning.
- Guides Performance Programming for strength deficits or cuff performance at particular angles

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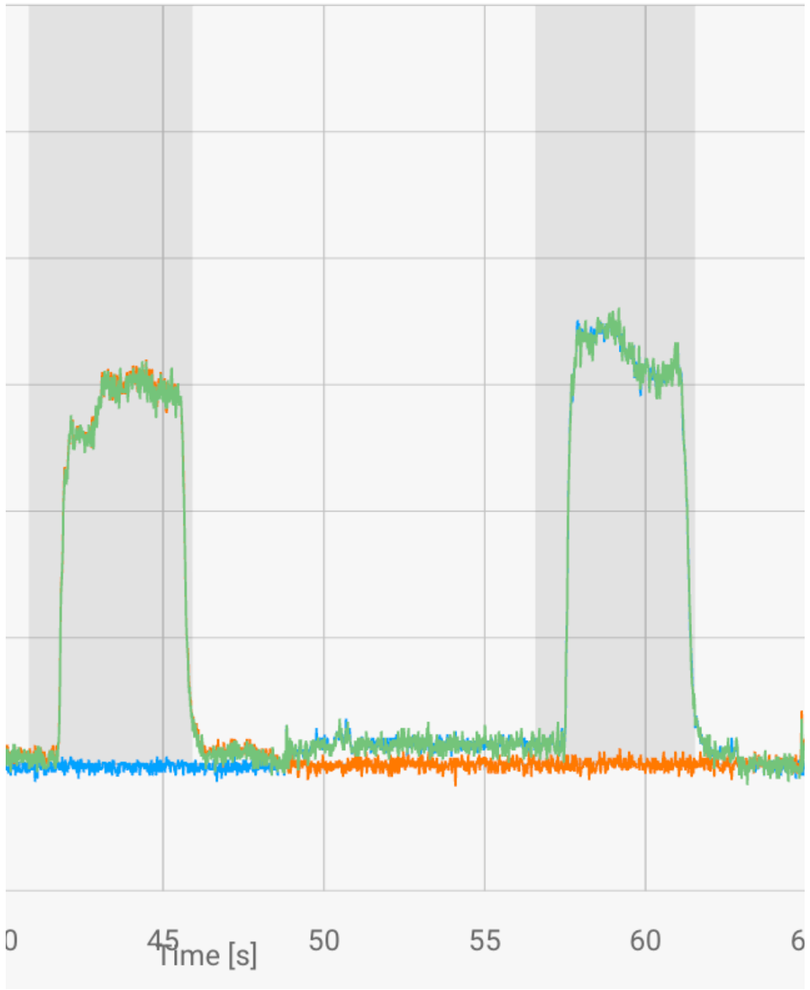

RFD

RATE OF FORCE DEVELOPMENT

- Measure of how quickly an athlete can generate force.
- 0–200 milliseconds reflects the explosive force phase
- 0–200ms provides a balance of sensitivity, reliability (ICC > 0.90), and real-world transfer.
- ASH - 10% BW

Ashworth et al., 2018 – ASH Test validated in elite overhead athletes. RFD at 0–200ms correlates with functional shoulder capacity and performance readiness.

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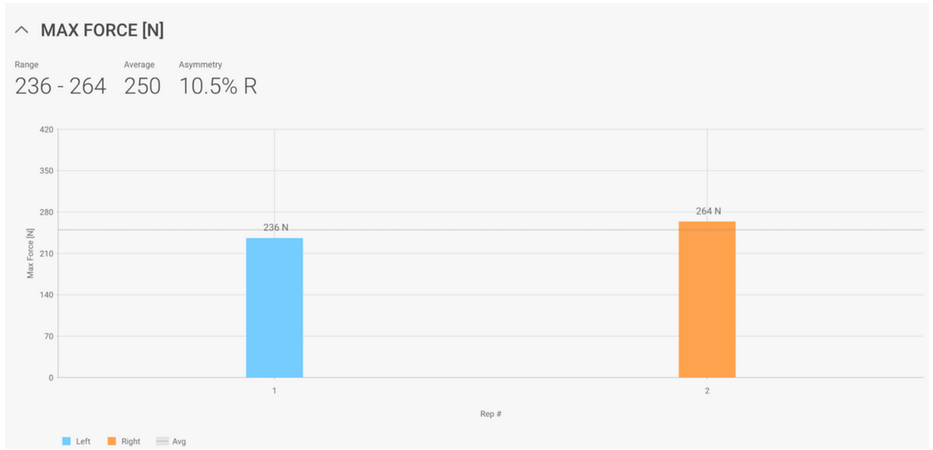
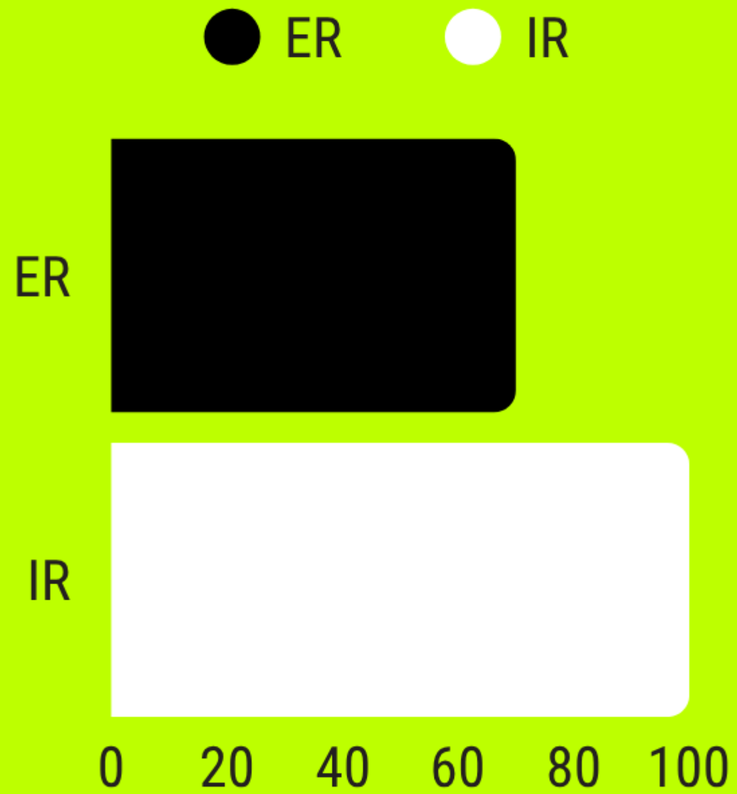
WHAT DOES ‘STRONG ENOUGH’ LOOK LIKE?





RATE OF FORCE DEVELOPMENT

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RETURN TO PERFORMANCE

PAIN & LOAD TOLERANCE

- No pain with daily activities or light resistance

OBJECTIVE STRENGTH

- ASH Peak Force
- Ideal ER:IR ≈ 0.70
- ER ≈ 19% BW
- IR ≈ 29% BW
- ASH 10% BW

NEUROMUSCULAR CONTROL

- Assesses shoulder control in isolated/global contexts - Scapular Movement
- Use functional test
- Ensure core + scapula integration under fatigue

HIGH-SPEED READINESS

- RFD
- Measures ability to generate force rapidly (0–200ms)
- Use ASH test or resisted long-lever under time demand

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KEY CONCEPTS

TO TAKE AWAY

PAIN FREE ISN'T ENOUGH

Athletes can be pain-free but still underprepared for sport demands. Pain ≠ readiness.

A SYMPTOMATIC CUFF REFLECTS SYSTEM BREAKDOWNS

Rotator cuff overload often signals poor scapular control, core weakness, or kinetic chain issues.

FORCE OUTPUT + RFD MATTER

Measure peak force and rate of force development to assess true performance capacity.

TRAIN WHAT'S MISSING.

Go beyond ROM and pain. Use objective data (e.g., ASH test) and target the full system.

VISIT THE PLAYGROUND

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WEIGHT RACK
3 SETS

PHYSIOTHERAPY
3 ROOMS

TECHNOLOGY
MODERN PERFORMANCE & RECOVERY TECHNOLOGY

SHOWERS
3 CUBICLES

RESTROOMS
2 TOILETS

SHOWERS
SNACKS & BEVERAGES

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THANK YOU

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