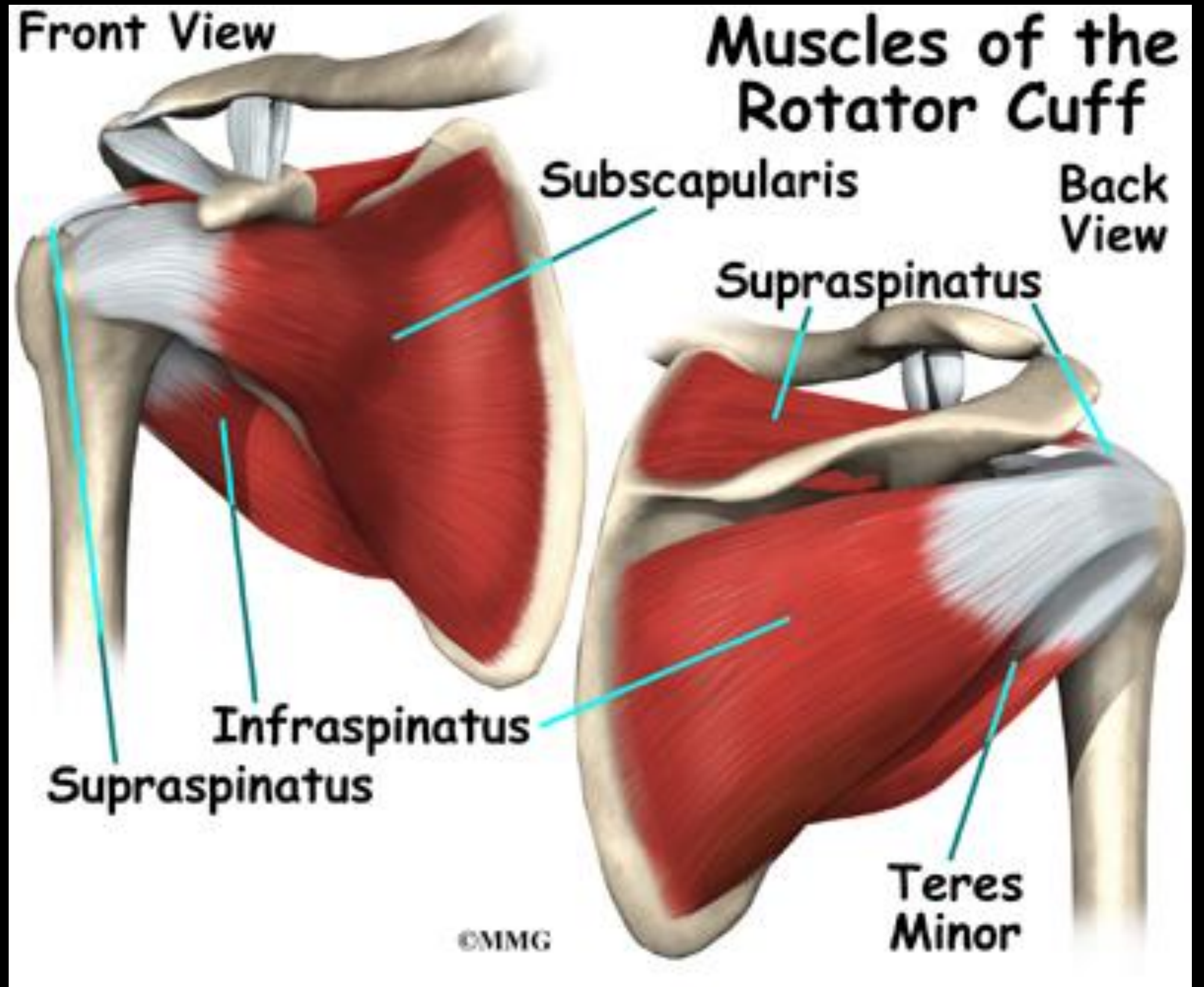


Tendinosis, Tendinitis, Tendinopathy, Partial Tear : The Confusion begins



Dr Harjoban Singh

Shoulder Joint



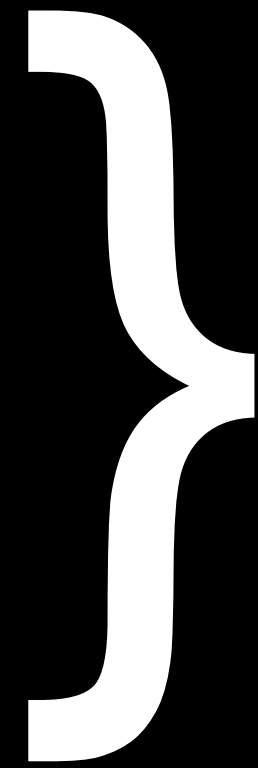
Shoulder pain is the third most common cause of musculoskeletal disorder after low back pain (LBP) and cervical pain



Rotator Cuff Disease

Tendinitis

Tendinosis

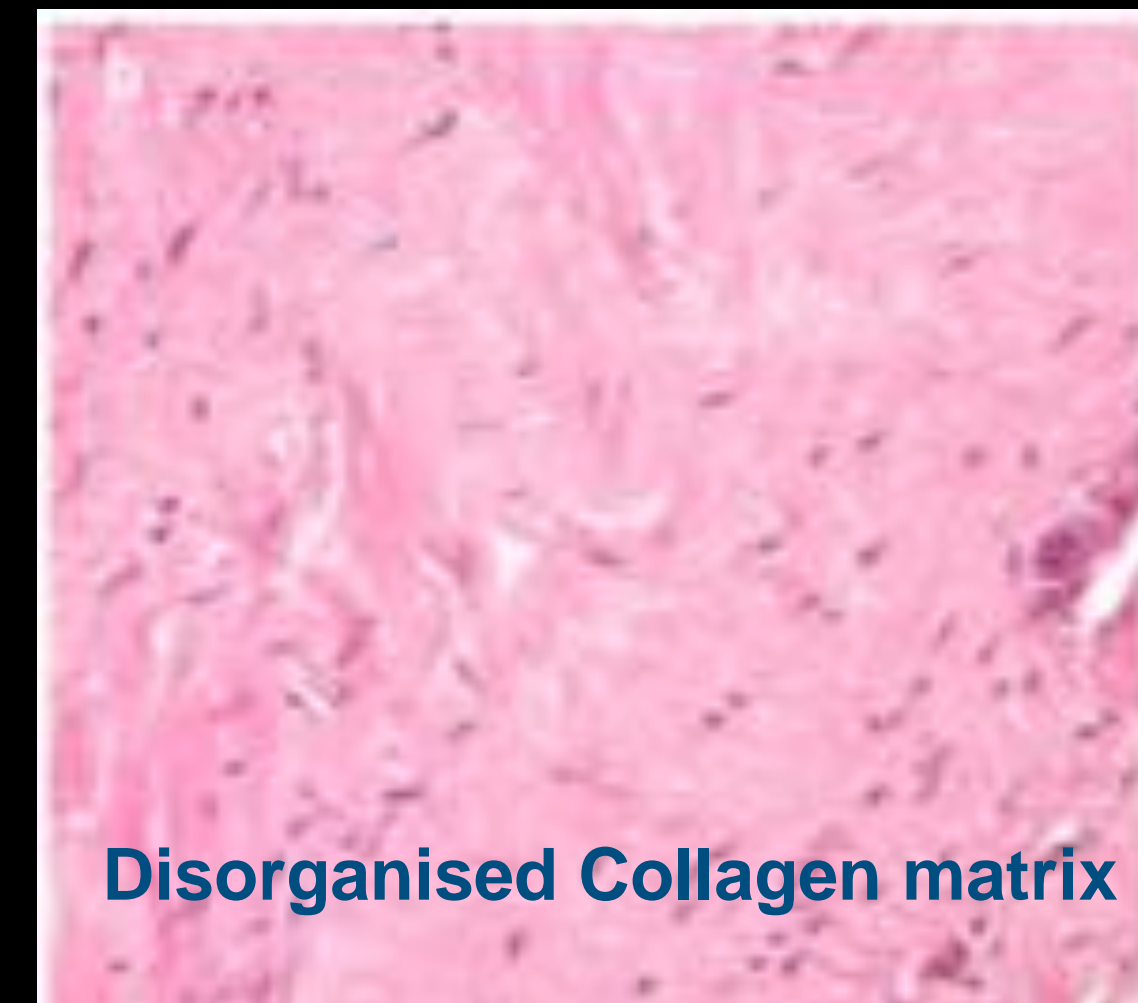
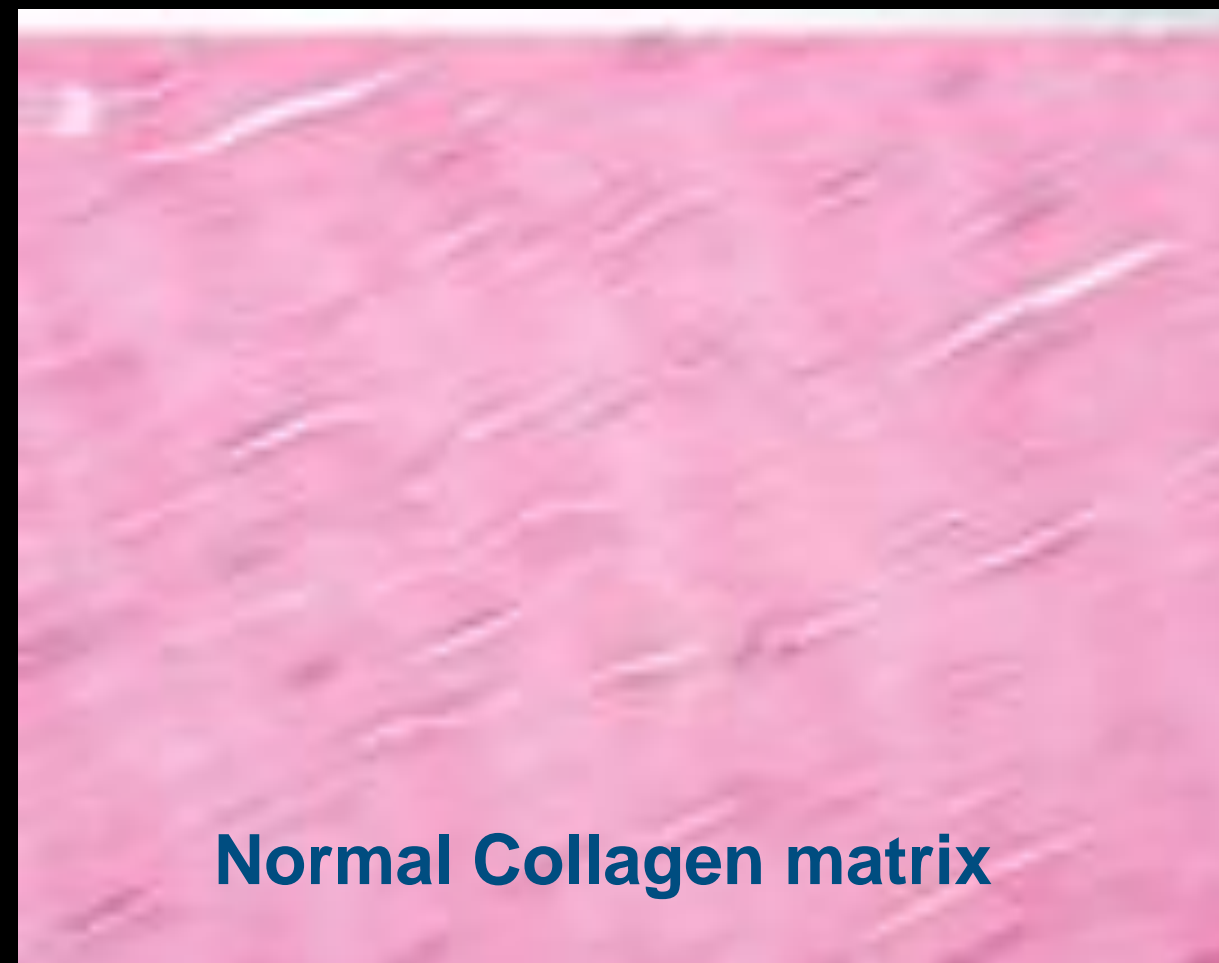


Tendinopathy

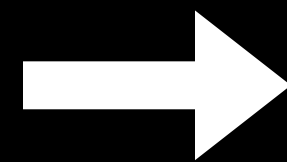
- *Overuse condition that manifests as pain in and around tendons*
- *Happens when the body fails to regenerate the tendon properly*

Tendinopathy

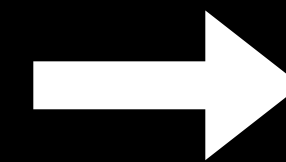
Excessive remodelling during tendon repair



Thickened tendon
& Disorganised
matrix



Mechanically
poor tendon
(Stiffer ECM)

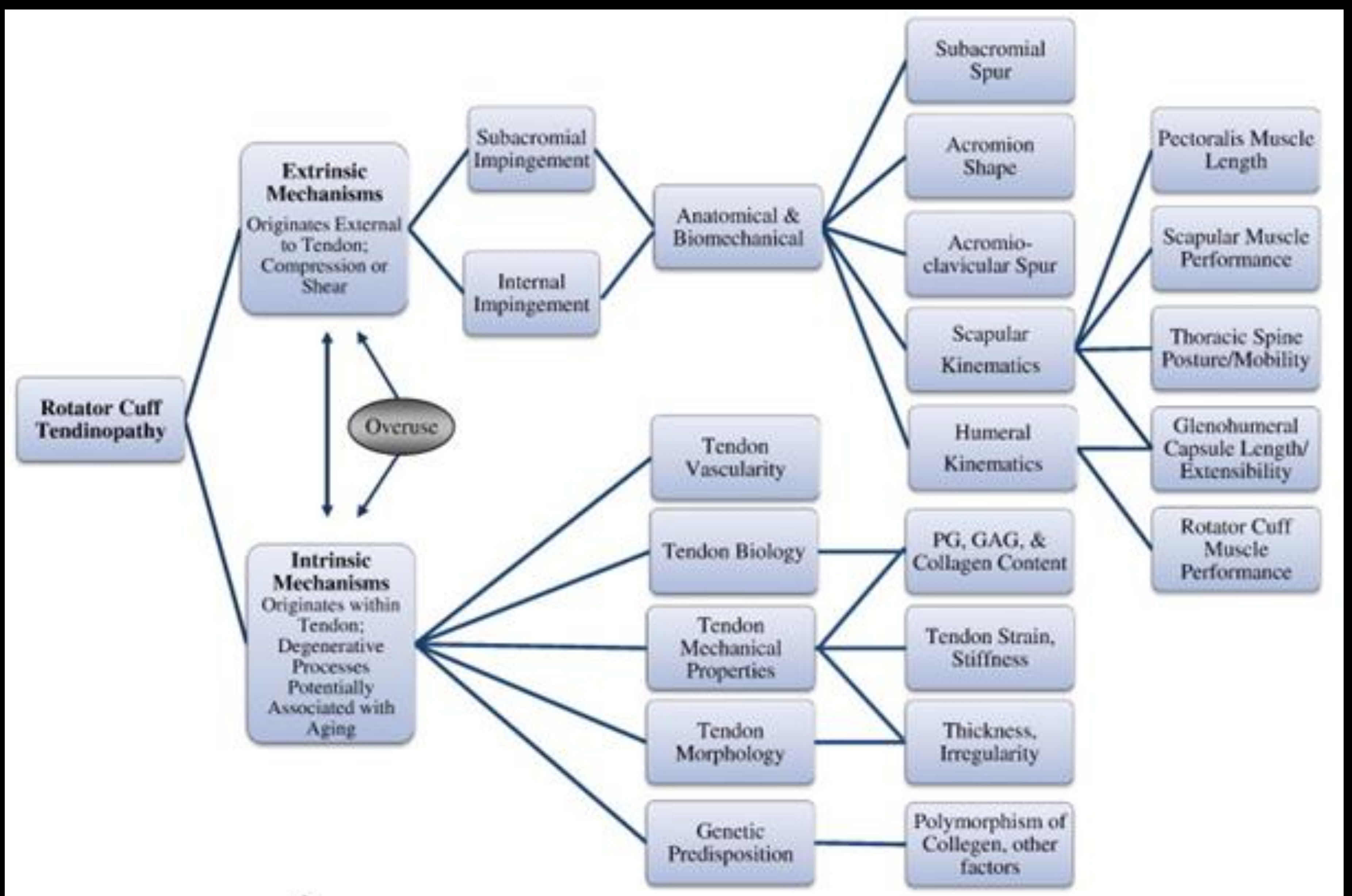


Tendon
fatigue



Failure/ Tear

ETIOLOGY



Most tendinopathies are multifactorial, and the degenerative process that precedes tendon rupture may result from a variety of different pathways and etiology factors

Clinical Assessment

History & Examination

ROM, Instability, Impingement, Rotator cuff muscles, Scapulo-humeral rhythm



Provocation tests

Use provocation tests that load the tendon to reproduce pain during the physical examination

Diagnostic Injection

Imaging

X-rays

Bone & joint anatomy

MRI

Fatty infiltration and Tear size and pattern can be better analysed
Associated pathologies

USG

Dynamic Study

Partially torn supraspinatus tendons can be functionally incompetent, leading to biomechanical deformation of the musculotendinous unit that is similar to that of a full-thickness tendon tear"

How to treat a Painful Tendon ?

- Pain Medication
- Rest / Avoiding painful activity
- Subacromial Injections
- Suprascapular Nerve Block
- Physiotherapy

***Exercises with mechanical loading should be started as soon as the pain “allows”.
The mechanical loading stimulates the healing response of the tendon***

Goals of Rehabilitation

- **Pain relief**
- **Restoration of Motion & Strength**
- **Proprioception**
- **Sports specific Rehab**

Rehabilitation

An exercises program is the basis of the conservative treatment and no therapeutic modality will provide long-term relief of pain and increased functional status unless it is complemented by an exercise program.

One of the most important aspects for the success of an exercise program is the individualization of the prescription. The exercise program should be as similar as possible to the usual mechanical stressors identified in each patient

Rehabilitation

- **Stretching Ex for anterior and posterior shoulder**
- **Strengthening Ex for the lower trapezius, Serratus Anterior and RC muscles**
- **Relaxation of upper trapezius**
- **Techniques of manual therapy**

Rehabilitation

Eccentric vs Concentric exercises

Eccentric exercises were more effective than concentric exercises in improving shoulder function and pain intensity.

However, neither of the two types of exercises was superior in improving tendon characteristics or disease activity

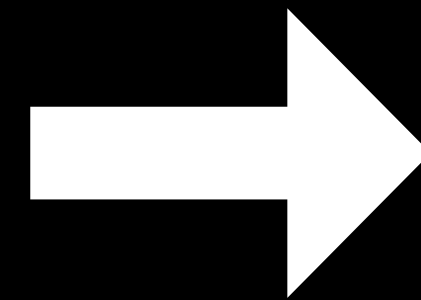
Concerns of Tear Progression !

Tear progression of symptomatic partial-thickness tears occurs at a significantly reduced rate compared with symptomatic full-thickness tears

Therefore, an initial conservative treatment approach is reasonable due to a decreased risk for tear progression

When to consider Surgery ?

**Failure of Conservative Tm
(6 months)**



**Debridement
SAD
Transtendon repair
Complete & repair**

***Acute Traumatic Rotator Cuff Tears is an exception
Early surgery has better outcomes***

AAOS Guidelines

Management of Rotator Cuff Injuries: Evidence-Based Clinical Practice Guideline

Adopted by the American Academy of Orthopaedic Surgeons (AAOS) Board of Directors

March 11, 2019

AAOS Guidelines

DIAGNOSIS (CLINICAL EXAMINATION)

- Strong evidence supports that clinical examination can be useful to diagnose or stratify patients with rotator cuff tears; however, combination of tests will increase diagnostic accuracy.

Strength of Recommendation: Strong



AAOS Guidelines

DIAGNOSIS (IMAGING)

- Strong evidence supports that MRI, MRA, and ultrasound are useful adjuncts to a clinical exam for identifying rotator cuff tears.

Strength of Recommendation: Strong



AAOS Guidelines

LONG TERM NON-OPERATIVE MANAGEMENT

- Strong evidence supports that patient reported outcomes (PRO) improve with physical therapy in symptomatic patients with full thickness rotator cuff tears. However, the rotator cuff tear size, muscle atrophy, and fatty infiltration may progress over 5 to 10 years with non operative management.

Strength of Recommendation: Strong



It is still unclear what factors influence tear progression and if tear progression advances enough to preclude future repair and subsequent resolution of symptoms.

AAOS Guidelines

CORTICOSTEROID INJECTIONS FOR ROTATOR CUFF TEARS

- Moderate evidence supports the use of a single injection of corticosteroids with local anesthetic for short-term improvement in both pain and function for patients with shoulder pain.

Strength of Recommendation: Moderate



Multiple steroid injections may compromise the integrity of rotator cuff, which may affect attempts at subsequent repair

AAOS Guidelines

HYALURONIC ACID INJECTIONS FOR ROTATOR CUFF TEARS

- Limited evidence supports for the possible use of hyaluronic acid injections in the non-operative management of rotator cuff pathology with no tears.

Strength of Recommendation: Limited 

AAOS Guidelines

PLATELET RICH PLASMA (PRP) INJECTION IN PARTIAL-THICKNESS TEARS

- Limited evidence does not support the routine use of platelet rich plasma for the treatment of cuff tendonopathy or partial tears.

Strength of Recommendation: Limited



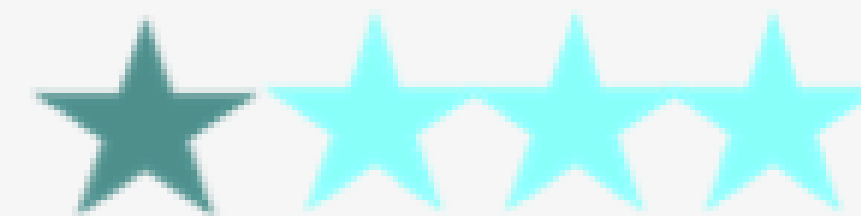
Future studies should standardize the type of PRP formulation utilized or at the very least measure the concentrations of key constituents.

AAOS Guidelines

PARTIAL ROTATOR CUFF TEAR

- In the absence of reliable evidence, the work group is unable to define a preference for the choice of debridement versus repair of high-grade partial-thickness cuff tears that have failed physical therapy, however repair of high grade partial tears could improve outcomes.

Strength of Recommendation: Consensus



AAOS Guidelines

HIGH-GRADE PARTIAL THICKNESS ROTATOR CUFF TEARS

- Strong evidence supports the use of either conversion to full-thickness or transtendinous/in-situ repair in patients that failed conservative management with high-grade partial thickness rotator cuff tears.

Strength of Recommendation: Strong



AAOS Guidelines

PROGNOSTIC FACTORS (AGE)

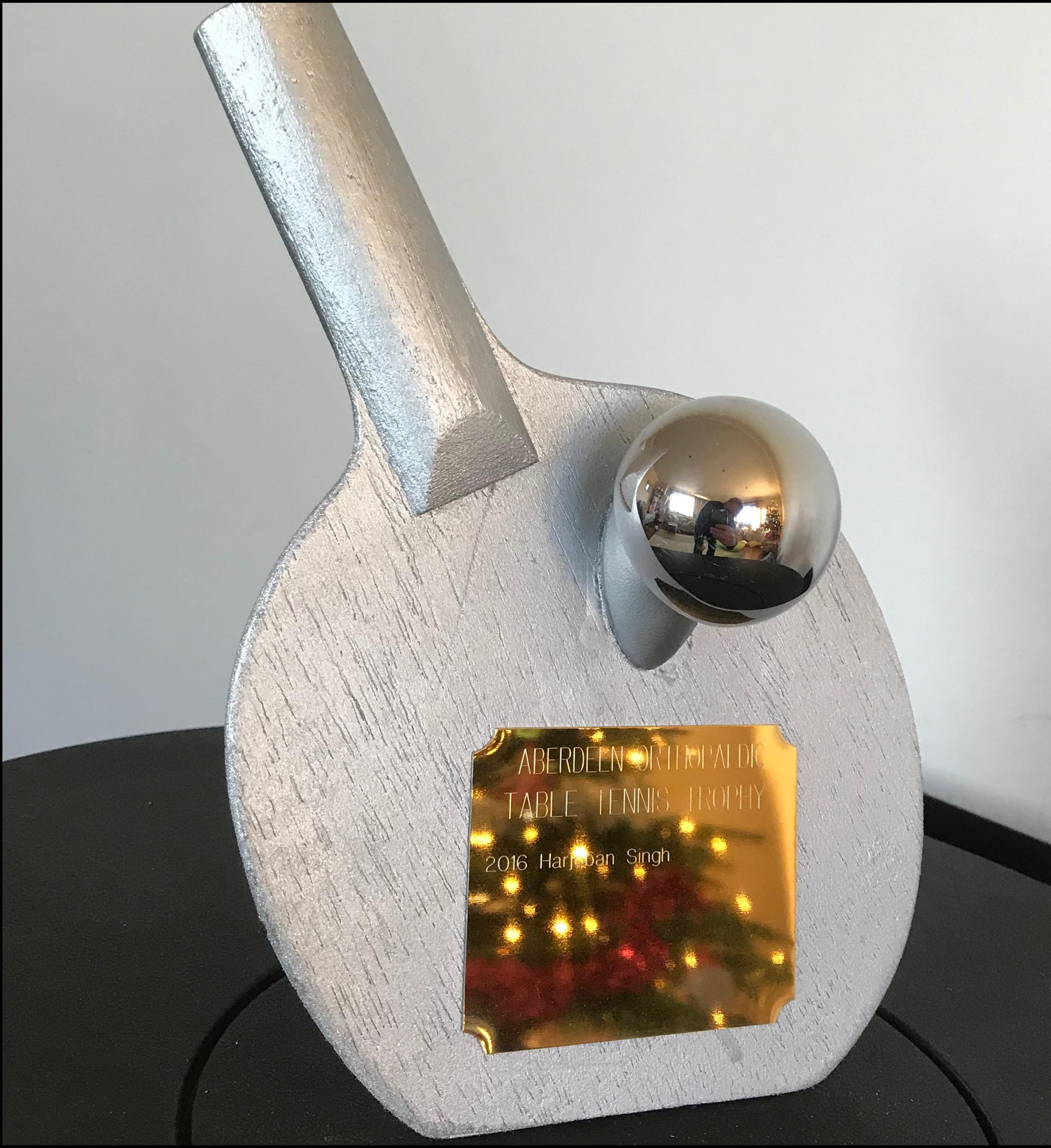
- Strong evidence supports that older age is associated with higher failure rates and poorer patient reported outcomes after rotator cuff repair.

Strength of Recommendation: Strong



Take Home message

- ★ **Tendinopathy is a degenerative process**
- ★ **Multifactorial Etiology**
- ★ **Clinical evaluation supplemented by imaging is the key to diagnosis**
- ★ **Conservative treatment is the key**
- ★ **Surgery to be considered in cases of**
 - **Failed conservative Tm**



Thank
You