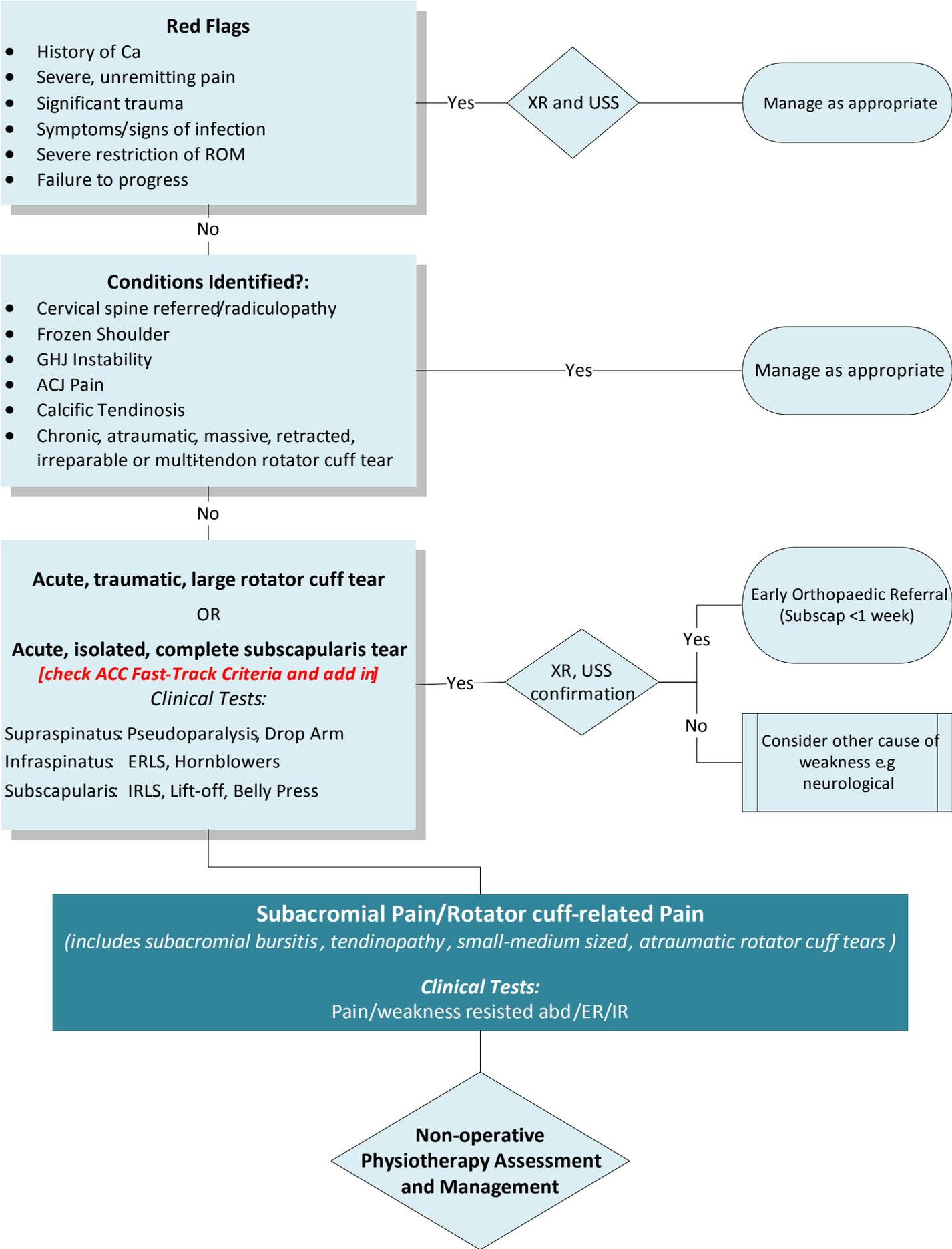# NON-OPERATIVE MANAGEMENT OF ROTATOR CUFF TEARS:
Diagnostic & Management Guidelines

Dr Angela Cadogan and Margie Olds

Shoulder Diagnostic Algorithm

Red Flags

- History of Ca
- Severe, unremitting pain
- Significant trauma
- Symptoms/signs of infection
- Severe restriction of ROM
- Failure to progress

→ Yes → ◇ XR and USS → Manage as appropriate

No ↓

Conditions Identified?:

- Cervical spine referred/radiculopathy
- Frozen Shoulder
- GHJ Instability
- ACJ Pain
- Calcific Tendinosis
- Chronic, atraumatic, massive, retracted, irreparable or multi-tendon rotator cuff tear

→ Yes → Manage as appropriate

No ↓

Acute, traumatic, large rotator cuff tear

OR

Acute, isolated, complete subscapularis tear
[check ACC Fast-Track Criteria and add in]
Clinical Tests:

Supraspinatus: Pseudoparalysis, Drop Arm
Infraspinatus: ERLS, Hornblowers
Subscapularis: IRLS, Lift-off, Belly Press

→ Yes → ◇ XR, USS confirmation

→ Yes → Early Orthopaedic Referral (Subscap <1 week)

→ No → Consider other cause of weakness e.g neurological

↓

Subacromial Pain/Rotator cuff-related Pain
(includes subacromial bursitis, tendinopathy, small-medium sized, atraumatic rotator cuff tears)

Clinical Tests:
Pain/weakness resisted abd/ER/IR

↓

◇ **Non-operative Physiotherapy Assessment and Management**

Physiotherapy Assessment & Management

Subjective Assessment:

Obtain usual patient history (subjective examination) including:

Patient-Reported Outcome Measures (DASH, QuickDASH, SPADI, Oxford Shoulder Score);
Demographics (incl. occupation, social role, recreation/sport);
Main problem; Mechanism of onset (gradual, traumatic, repetitive etc);
Symptom duration
Current symptoms and functional limitations;
Treatment to date (and effect);
Past history (shoulder and/or other MSK complaints);
Medical history; Imaging investigations

Pay particular note to the following that are important factors in recovery of painful subacromial conditions

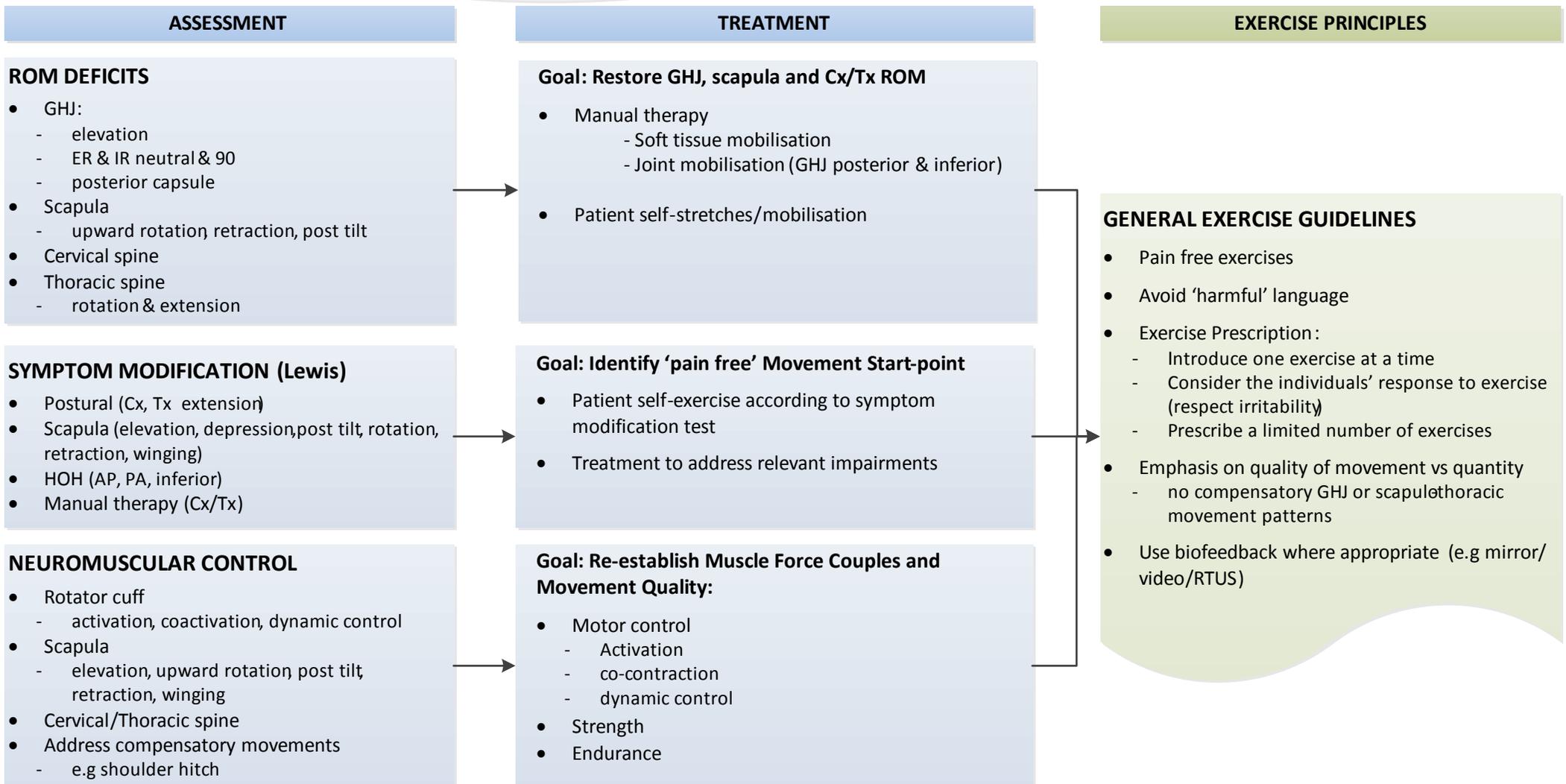| ASSESSMENT	TREATMENT
KNOWLEDGE & BELIEFS • Knowledge & beliefs about condition • Beliefs about pain	**Goal: Patient understands their condition & relevance/ context of pain.** • Education (avoid 'harmful' language) • Address maladaptive beliefs (see below)
EXPECTATIONS • Beliefs & expectations about physiotherapy • Expectations of recovery/outcome (amount and timeframe)	**Goal: Calibrate treatment and outcome expectations.** • Explain evidence for physiotherapy outcomes compared with surgical outcomes • Discuss physiotherapy treatment (content, frequency, duration) • Discuss expectations of realistic functional outcome
PSYCHOSOCIAL MODIFIERS (Yellow Flags) • Attitudes & beliefs (maladaptive pain beliefs & cognitions; pain = damage; fear) • Maladaptive pain behaviours (fear-avoidance) • Conflict (compensation, medical, diagnosis or treatment) • Mood (depression/anxiety) • Self efficacy and coping • Family/Social (over-protective, unsupportive) • Work (job threatened, earnings compensation)	**Goal: Identify yellow flags and manage or refer as appropriate.** Only address yellow flags if present • Address pain beliefs and fear (e.g Pain Neuroscience Education) • Acknowledge 'frustrations' and 'move-on' • Refer if significant depression/anxiety • Address work issues EARLY with employer • Vocational support if sig. work issues.
PAIN MANAGEMENT • Assess pain severity • Irritability	**Goal: Patient can self-manage pain and flare-ups.** - Relative Rest - Sleep hygiene - Cold/Ice - Stress management - Pain medication - Pain education if maladaptive pain beliefs/behaviours
TENDON HEALTH • Lifestyle factors (smoking, alcohol) • BMI • Medical history • Physical activity	**Goal: Patient understands factors affecting tendon health.** • Smoking • Obesity • Nutrition • Physical Activity

Physical Examination:

General Treatment Principles

- Rx is based on physical assessment findings (impairments), not structural pathology.
- Active exercise is the primary treatment approach
- Exercises should NOT provoke pain
- Regular re-assessment is required

ASSESSMENT	TREATMENT	EXERCISE PRINCIPLES

ROM DEFICITS

- GHJ:
  - elevation
  - ER & IR neutral & 90
  - posterior capsule
- Scapula
  - upward rotation, retraction, post tilt
- Cervical spine
- Thoracic spine
  - rotation & extension

Goal: Restore GHJ, scapula and Cx/Tx ROM

- Manual therapy
  - Soft tissue mobilisation
  - Joint mobilisation (GHJ posterior & inferior)
- Patient self-stretches/mobilisation

SYMPTOM MODIFICATION (Lewis)

- Postural (Cx, Tx extension)
- Scapula (elevation, depression, post tilt, rotation, retraction, winging)
- HOH (AP, PA, inferior)
- Manual therapy (Cx/Tx)

Goal: Identify 'pain free' Movement Start-point

- Patient self-exercise according to symptom modification test
- Treatment to address relevant impairments

NEUROMUSCULAR CONTROL

- Rotator cuff
  - activation, coactivation, dynamic control
- Scapula
  - elevation, upward rotation, post tilt, retraction, winging
- Cervical/Thoracic spine
- Address compensatory movements
  - e.g shoulder hitch

Goal: Re-establish Muscle Force Couples and Movement Quality:

- Motor control
  - Activation
  - co-contraction
  - dynamic control
- Strength
- Endurance

GENERAL EXERCISE GUIDELINES

- Pain free exercises
- Avoid 'harmful' language
- Exercise Prescription :
  - Introduce one exercise at a time
  - Consider the individuals' response to exercise (respect irritability)
  - Prescribe a limited number of exercises
- Emphasis on quality of movement vs quantity
  - no compensatory GHJ or scapulothoracic movement patterns
- Use biofeedback where appropriate (e.g mirror/ video/RTUS)

| ASSESSMENT | TREATMENT | EXERCISE PRINCIPLES |

STRENGTH & FUNCTION

- Tendon loading
- Specific shoulder/girdle strengthening
- Functional strengthening

Goal: Restore Strength and Function

- GHJ/scapula
- Shoulder girdle
- Kinetic chain

GUIDELINES FOR EXERCISE PROGRESSION

In addition to "General Exercise Guidelines" above, exercises should result in:

- <u>Decreased</u> pain
- Increased muscle function (activation, strength, endurance)
- Good quality of movement
- Progressive load

KINETIC CHAIN FUNCTION

- Mobility
- Strength
- Function

Goal: Optimise Kinetic Chain Function

- Co-morbidities: e.g
  - Lumbar spine
  - Hip/pelvis
  - Lower limb
- Patient-specific activities

PROGRESSIVE LOADING

Adhering to the guidelines above, the following is a general guide to progressive tendon loading with a general focus on increasing pain-free elevation and external rotation:

- Irritable:
  - Pain free isometric loading
  - Gravity assisted -> gravity neutral-> anti-gravity
  - Short -> long lever
  - Supported -> unsupported
  - Through range/inner, mid, outer range
  - Co-contraction/closed kinetic chain
- Reducing irritability:
  - Isotonic loading
  - Progressive load
- Functional progressions:
  - Endurance
  - Speed
  - Position-specific (incl. overhead)
- Dynamic stability
  - Pertubations/un-anticipated load
- Cortical facilitation:
  - Cognition
  - Metronome pacing
  - Contralateral hand squeeze (RCT activation)
  - PNF