Clinical evaluation, diagnosis and passive management of the shoulder complex

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ABSTRACT
Management of impairment of the shoulder complex can be facilitated if based on detailed, precise examination. Examination includes a detailed interview, or subjective examination, in which clues to the clinical patterns present can be found, followed by a thorough physical examination. Such an approach has been demonstrated to lead to accurate diagnosis. The physical examination includes active, resistive and passive examination, examination of the glenohumeral quadrant, tests for glenohumeral passive stability and dysfunction of the glenoid labrum, neural provocation testing, palpation and evaluation of contributing factors. Passive treatment is one option in management of the shoulder complex, with treatment effective in the management of pain, stiffness and impingement of soft tissues between bony/ligamentous prominences. Any approach to management with any particular patient will be optimally effective in the presence of good clinical reasoning, a sound knowledge of clinical patterns associated with shoulder dysfunction and other issues that might impact on the patient’s presentation, coupled with critical reflective review and reassessment.

Key words: glenohumeral joint, subacromial space examination, passive mobilisation

CLINICAL EVALUATION, DIAGNOSIS AND MANAGEMENT OF THE SHOULDER COMPLEX
This paper presents one approach to examination and management of the shoulder complex with its ‘evidence base’ derived from a combination of research findings and sound reflective clinical practice. While this paper outlines passive examination and management and their interpretations in the light of new understanding of shoulder function, this component of examination and management should be considered in conjunction with evaluation and management of dynamic control of the shoulder complex. Our approach to this aspect of shoulder complex management is presented elsewhere (Magarey and Jones 2003).

Clinical evaluation and management of the shoulder complex is traditionally identified as difficult, probably as a result of the degree of functional overlap of multiple structures required for normal activity and the unique ‘illness or pain-experience’ of each patient that contributes to their presentation (Jones et al 2000, Jones et al 2002). However, Magarey (1998) demonstrated a high level of physical diagnostic accuracy from physiotherapy examination compared to arthroscopic diagnosis.

CLINICAL EXAMINATION
The clinical examination consists of a subjective or interview section and a physical section, during which hypotheses formed during the interview may be supported or modified. Further development of hypotheses occurs throughout the treatment process on the basis of response to particular interventions.

Subjective examination (interview)
The principles of taking a good subjective examination may be found elsewhere (Magarey 1994, Maitland 1991) and are not reiterated here. During the interview, the physiotherapist must screen for activities typically associated with shoulder disorders, such as overhead sport, and the characteristic features of conditions likely, and for those less likely, to be responsible for symptoms.

Generation of hypotheses from categories such as the patient’s impairments (WHO 1980), both physical and psychosocial, precautions and contraindications to examination and treatment, prognosis and management also forms an important component of the subjective examination (Gifford 1997, Jones 1995, Jones et al 2000). While recognising that patients’ cognitive/affective psychosocial status influences all pain states (acute to chronic and nociceptive dominant to centrally dominant) (Gifford 1998, 2000, Jones et al 2002) discussion in this paper is restricted to physical considerations in patients’ presentations.

Knowledge of clinical patterns of the shoulder complex facilitates interpretation of all information received, allowing the therapist to guide the
interview to establish supporting or negating features of particular clinical patterns (Jones and Magarey 2001).

**Physical examination**

Physical examination is based on the examination procedures outlined by Maitland (1991) with additional components drawn from other sources. Again, the basic examination is not reiterated. Highlighted are those specific features that we have found particularly useful to assist in clinical diagnosis and as clinical indicators of impairment useful for reassessment and determining management. We have concentrated only on assessment of the glenohumeral joint and subacromial space. This focus should not limit consideration of other structures within the shoulder complex.

**Active examination**

Particular movement patterns have been found to be useful in distinguishing different clinical syndromes. Examples only are provided here.

- Glenohumeral flexion or abduction: the commonly seen drift from the frontal or coronal plane towards the plane of the scapula may be the result of limitation of movement. Attempted correction will lead to the inability to complete the movement because of tissue resistance. Alternatively, the drift may be antalgic, to avoid moving into an impingement position through mid to late range. Correction of the drift in this situation will lead to significant increase in symptoms.

- Movement into abduction or flexion is often associated with altered scapulothoracic movement patterns. Overactivity of scapular elevators as a group with consequent scapular elevation and upward rotation is one such pattern, while overactivity of levator scapulae and rhomboids, coupled with underactivity or lengthening of upper trapezius with downward scapular rotation is another.

- Lateral rotation performed in neutral stresses the superior capsular structures, whereas the inferior glenohumeral ligament complex is more stressed in 90 degrees of abduction, and in flexion more stress is placed on the superior capsular and labral structures (Terry et al 1991).

- Medial rotation assessed in 90 degrees of flexion, the Hawkins’ impingement test (Hawkins and Bokor 1990), compresses both the subacromial and subcoracoid spaces. Orthopaedic differentiation of subacromial involvement is based on elimination of pain following local anaesthetic injection of the subacromial space – a procedure not available to physiotherapists, who must find alternative methods of differentiation.

- Extension is an important functional movement. Differentiation of involvement of the long head of biceps (LHB) and its attachments can be made by comparing range of movement available at the shoulder with elbow extension/pronation with that performed when biceps is off stretch in elbow flexion(Pagnani et al 1995).

- Assessment of all active movements can be refined by determining the relative contribution of scapulothoracic and glenohumeral movement by means of passive stabilisation of the scapula during active movement and/or passive assistance with scapular movement (Figure 1).

**Resistive examination**

Traditionally, the rotator cuff has been evaluated for involvement of the tenomuscular components with isometric resistive testing in neutral. Pain and weakness associated with one resisted movement is likely to implicate a single component of the cuff, however the discriminatory value of these tests
becomes limited when multiple resisted movements are positive, as a result of the interdigitation of rotator cuff fibres (Clark & Harryman 1992). However, marked weakness on both resisted abduction and lateral rotation is an indicator of full thickness rotator cuff tear (Matsen and Arntz 1990).

When resisted abduction (supraspinatus) or lateral rotation (infraspinatus/teres minor) is painful, the relative contribution of the tendon itself or of non-contractile structures within the subacromial space may be determined by using the differentiating procedure described by Magarey & Jones (1991), Maitland (1991) and Pfund et al (1998a,b). As with all clinical tests, however, care is needed with interpretations that have not been validated, although the informal analysis reported by Magarey (1993) indicated support for these interpretations.

Similar differential testing is possible for pain on resisted medial rotation, to determine whether the tendons of subscapularis and long head of biceps (LHB) or other adjacent structures are impinged within the subcoracoid space. These tests have also not been validated.

Additional tests for the contractile structures within the shoulder complex may refine our ability to detect pathology. For example:

- The supraspinatus or “empty can test” described by Jobe & Moynes (1982) as the position in which EMG activity is maximal in supraspinatus, may be useful to identify specific involvement of this muscle.

- The "reverse empty can test” loads the shoulder elevation component of LHB function. This test is predicated on the observation of Burkhead (1990) of activity in biceps during glenohumeral abduction and flexion irrespective of elbow activity.

- The addition of a shoulder flexion component to the isometric test of elbow flexion/supination with the arm by the side also selectively loads LHB rather than the short head, as the short head has little shoulder flexion function (Itoi et al 1994).

- Involvement of the LHB tendon’s synovial sheath may be evaluated by resisting LHB function through full range, from shoulder extension/medial rotation, elbow extension/pronation (with the tendon on full stretch) (Figure 2A) to shoulder flexion/lateral rotation combined with elbow flexion/supination (full inner range) (Figure 2B). Palpation longitudinally over the tendon in the groove may reveal local tenderness and soft tissue textural changes, as well as crepitus between the tendon and sheath during the movement, associated with the point in range where pain is provoked.

- The lift off test for subscapularis (Gerber & Krushell 1991, Gerber & Rippstein 1992, Gerber et al 1996, Warner et al 2001): the arm is passively placed behind the body and the hand then lifted off the lower back. The patient is asked to maintain the hand position when the arm is released. If the arm drops against the patient’s back, the lift-off test is positive and indicates that there is a tear of subscapularis (Gerber et al 1996, Hertel et al 1996, Warner et al 2001).

Assessment of other muscles in the shoulder complex as sources of pain does not create the same difficulties as the rotator cuff and biceps, as they are not influenced by anatomical positions within confined areas such as the subcoracoid or subacromial spaces, nor is there such intimate interdigitation of their fibres.

**Passive examination**

All movements assessed actively are also examined passively, with and without scapular support. In addition, accessory movements are examined, as described by Maitland (1991), both in neutral and at
the end of range of physiological movements. Stiffness or laxity in accessory movements can then be matched to knowledge of normal translatory and rotary movements coupled with end range physiological movements to determine relative involvement of different structures (Harryman et al. 1990, 1992, Terry et al. 1991). Exaggerated translation in the direction normally coupled with the movement assessed indicates tightness in the passive restraints to the physiological movement. For example, in a normal glenohumeral joint, lateral rotation in abduction is combined with a posterior translation at the end of range (Harryman et al. 1990, 1992). If the anterior glenohumeral capsuloligamentous structures are tight, posterior translation will occur earlier than normal and rotation will be limited. Similarly, detection of a reversal of normal coupled translation may demonstrate an element of instability in the joint. If the anterior capsule is lax, for example, posterior translation during lateral rotation will be reduced, absent or reversed, depending on the degree of laxity.

In throwing athletes, evaluation of total rotation range in 90 degrees of abduction should be included, as total rotation range of less than 180 degrees has been identified as a significant contributing factor to development of superior labral lesions and potential internal impingements (Burkhart et al. 2000, 2003).

Assessment of passive stability of the glenohumeral joint

Traditional assessment of passive stability of the shoulder, with translation tests such as those described by Gerber and Ganz (1984) is valuable, even though the accuracy of the tests is limited when performed on a conscious patient (Magarey 1993). The anterior drawer test evaluates the amount of allowed anterior translation (Harryman et al. 1992) in a neutral position, with some differentation of specific structures possible by altering the range of abduction in which the translation is assessed. Anterior translation testing can be refined by repetition in abduction/lateral rotation where, as a result of normal coupled translation, it should be more restricted than in neutral rotation, with a very firm endfeel (Coefield 1993, Harryman et al. 1992). In a shoulder with anterior laxity, this movement may be increased with a loss of that rigid endfeel.

Similarly, the Gerber & Ganz (1984) posterior drawer test provides an indication of the range of translation available in a position in which posterior translation should be relatively restricted (horizontal flexion and slight medial rotation) (Harryman et al. 1990, 1992). Therefore, it may provide a more accurate assessment of capsulo-labral integrity than posterior translation performed in a neutral position. However, subtle activity in the rotator cuff has a profound effect on the range of any translation in the glenohumeral joint (Cain et al. 1987, Howell & Galinat 1987, Howell et al. 1988, Lippitt et al. 1993, Warner et al. 1993, Wuelker et al. 1994) and apprehension associated with positions approximating symptomatic subluxation may restrict the value of these combined movement tests.

Hence, if laxity is suspected, translation testing should be undertaken in different positions, at different speeds and on more than one occasion before a final decision is made. As a patient’s ability to relax influences the test result, familiarity with and confidence in the physiotherapist’s handling skills will be a significant factor in the results obtained. Shankwiler & Burkhead (1996) commented that the diagnostic process associated with the shoulder takes time, with the need for repeated visits, interpretation and correlation of diagnostic tests with symptoms.


**Figure 3.** The antero-inferior translation test: the antero-inferior translation is transferred through the intertwined arms to the posterior aspect of the head of humerus by rotation of the therapist’s body away from the patient’s side.
Assessment of anterior apprehension and relocation are valuable (Mohtadi 1991), although differentiation between pain and apprehension may sometimes be difficult (Altcheck et al 1990). Subjects with atraumatic instability, particularly overhead athletes with overuse injuries, may not demonstrate the same apprehensive response as those who have suffered a dislocation (Glousman & Jobe 1996). An apprehension and relocation test positive for pain rather than apprehension is considered diagnostic of one presentation of internal impingement (Davidson et al 1995, Jobe et al 1996), with recent recognition of the need to vary the angle of abduction in which the rotation/translation is tested as contact between posterior glenoid and rotator cuff may not occur until higher ranges of abduction (Hammer et al 2000).

Assessment of labral injury
Clinical diagnosis of lesions of the superior labrum is difficult as there are few identifiable clinical features (Ciullo 1996, Magarey et al 1996, Schmitz & Ciullo 1998, Snyder et al 1995). Because of its attachments to the superior labrum, loading of LHB may indirectly load the superior labrum (Andrews et al 1985, Ciullo 1996, Detrisac & Johnson 1986, Grauer et al 1992), thereby provoking pain in the presence of labral damage. Loading the biceps in different arm positions may increase the stress on different aspects of the superior labrum, possibly provoking symptoms not otherwise detectable on clinical examination.

Recently, a number of tests have been reported to evaluate superior labral or SLAP (Superior Labral Anterior Posterior) lesions (Ciullo 1996, Liu et al 1996, Mimori et al 1999, O’Brien et al 1998, Schmitz and Ciullo 1998). These include the “SLAPrehension” test (Ciullo 1996, Schmitz & Ciullo 1998), a “crank” test (Liu et al 1996) and the “active compression test” (O’Brien et al 1998). These are well described in the respective papers, although research verification for the tests varies.

Mimori et al (1999) reported sensitivity of 100%, specificity of 90% and accuracy of 97% in a prospective comparison against magnetic resonance arthrography and arthroscopy of 32 patients with throwing injuries with their “pain provocation test” – glenohumeral external rotation in 90 to 100 degrees of abduction, performed in both forearm pronation and supination and considered positive if pain is provoked or worsened in pronation.


Assessment of the shoulder quadrant
The shoulder quadrant (Magarey & Jones submitted, Maitland 1991) is an invaluable assessment procedure for the detection of abnormality in the glenohumeral joint. While not structure specific, its functional relevance and level of sensitivity makes it a useful treatment procedure and re-assessment tool. Use of differentiating manoeuvres in positions around the quadrant that provoke the subject’s symptoms may make the test more structure specific, although inconsistencies are frequent and the responses not definitive (Magarey 1993). Such differentiation can be useful, not only from a diagnostic sense, but also as a guide to direct treatment.

Palpation examination
Palpation of all structures that could potentially be involved in the patient’s presentation should be considered routine and description is therefore not covered. However some specific structures and/or techniques that we have found particularly useful include:

- The subacromial bursa: slight swelling or thickening may be detected between the inferior surface of the acromion and the humeral head. In the normal situation, the feel is of skin against bone, but when subtle swelling is present, a sense of fluid beneath the finger can be detected.
- A similar technique can be used in the subcoracoid space, with swelling, thickening and tenderness readily detectable. Such findings may be indicative of a subcoracoid impingement (Dines et al 1990, Gerber et al 1995, 1997).
- Swelling can also be detected over the anterior aspect of the humeral head with a similar gentle palpation.
- The coracoacromial ligament (CAL): the CAL can be felt on most subjects as a firm, unforgiving structure between the coracoid and the anterior tip of the acromion, often with an obvious fibrous edge. In subjects with subacromial impingement, this ligament is frequently thickened and tender.
- Palpation in prone with the arm overhead. In this position, access to the undersurface of the lip of the acromion and the CAL is facilitated. The posterior capsule and possibly, the postero-superior glenoid rim can also be accessed. This is the area where internal impingement may cause fraying and inflammation involving the glenoid rim, labrum and articular surface of the rotator cuff (Davidson et al 1995). The insertion of infraspinatus into the posterior capsule is an area that frequently exhibits thickening and tenderness. While palpation of the posterior humeral head cannot directly reveal a Hills Sachs lesion (Baker et al 1990, Calandra et al 1989, Norlin 1993, Ribbens et al 1990), tenderness in this region is readily detectable, possibly providing supporting evidence for chronic instability. If the rotation of the
arm is changed and palpation repeated with a change in response, support for the presence of a Hills Sachs lesion may be strengthened.

- Palpation of tissues in the region of the supraspinal and spinoglenoid notches may elicit local tenderness and occasionally a deep non-specific ache over the scapula and glenohumeral joint. Such a response may provide suspicion of a supraspinal nerve entrapment at either if these sites. The nerve is too deeply placed for direct palpation.
- The papers by Vaes et al (1992) and Mattingly & Mackarey (1996), in which the optimal sites for palpation of structures commonly associated with pathology of the shoulder complex were described, facilitate precision of palpation examination. Recently, we explored many of the sites described above by comparison with diagnostic ultrasound, confirming the structures underlying the palpating finger in each situation.

**Neural provocation examination**

The brachial plexus and its components are vulnerable to damage as they pass the base of the coracoid process and adjacent inferior capsule of the glenohumeral joint, particularly with antero-inferior instability (Ciullo 1996). Therefore, routine evaluation of upper limb tension tests (ULTT) 1, 2A and 3 (Butler 1991) is recommended. However, in many shoulder disorders, examination may need be limited to a modified ULTT2A, as this procedure alters tension in the median nerve with little specific glenohumeral joint movement.

If supraspinal nerve entrapment is suspected, this nerve may be placed under tension in scapular depression and protraction combined with horizontal flexion. In that position, lateral rotation places the spinati under tension, pulling on their motor branches, thereby accentuating the impingement of the nerve on the medial border of the notch (Mayfield & True 1973, Narakas 1989, Pratt 1986, Seddon 1972, Solheim & Roaas 1978, Sunderland 1978) while resisted lateral rotation and passive medial rotation may also provoke symptoms (Skurja & Monlux 1985).

The axillary nerve is vulnerable to damage in closed shoulder injuries, such as dislocation and may become involved in the quadrilateral space syndrome (Baker & Liu 1993, Burkhead et al 1992, Cahill 1980, Cahill & Palmer 1983, Mendoza & Main 1990, Narakas 1989, Post & Grinblatt 1992, Pratt 1986, Shankwiler & Burkhead 1996, Sicuranza & McCue 1992). The movement hypothesised to place the nerve under maximal tension is abduction with different combinations of rotation and extension (Loemer & Graham 1989, Narakas 1989, Shankwiler & Burkhead 1996), all positions that are also provocative for the affected interface tissues, making differentiation difficult. The nerve may be palpated in the quadrilateral space, with such palpation occasionally provoking vague tingling in the posterior deltoid region.

**Evaluation of other contributing factors**

Examination of other structures that can contribute to the development of shoulder pain must be included. Cervical somatic structures such as the posterior intervertebral joints may refer pain to the shoulder (Aprill et al 1990, Dwyer et al 1990, Schneider 1985, 1989a,b). Examination should include posterior and anterior palpation and accessory movement on the ipsilateral side with the arm in neutral and in a position in which tension in the neural structures is increased.

Solem-Bertoft et al (1993) found that the anterior opening of the subacromial space narrowed with protraction of the scapula. Culham & Peat (1993) demonstrated that increased thoracic kyphosis resulted in increased scapular protraction and Crawford and Jull (1991) reported decreased range of shoulder flexion in subjects with increased thoracic kyphosis, particularly in older subjects. Consequently, thoracic and scapular posture, mobility and motor control must be included in assessment (Mottram 1997).

The other joints involved in the shoulder, the acromioclavicular and sternoclavicular joints, are important components to function of the complex. Their examination should also be considered routine as should a global physical assessment of the patient, since recognition of the influence of links to other structures is important (Ciullo 1996) – for example, the influence of lumbopelvic posture on length of latissimus dorsi.

**Passive management**

Management of local shoulder complex disorders with a predominance of nociceptive involvement is multi-dimensional. Passive treatment simply forms one possible component. Selection of treatment is based on consideration of interpretations of and the priority placed on findings from both the subjective and physical examination. Division of management as presented here is somewhat artificial, as consideration of all possible avenues should be made at the same time. Consideration is limited to those disorders with a primary nociceptive presentation.

The principles of selection of passive treatment techniques are covered in depth elsewhere (Austin et al 1996, Jones et al 1994, Magarey 1986, Maitland 1991). In this paper, we present only those features of passive treatment that we have found particularly useful. Discussion of the physiological and biomechanical mechanisms by which passive treatments such as those advocated are effective is beyond the scope of this paper (Austin et al 1996, Lee et al 2000, van Wingarden 1995, Vujnovich 1995).

We believe strongly in the approach advocated by Maitland (1991) of impairment-based management, tempered by our growing knowledge of pathomechanics and pathophysiology of the structures within the shoulder complex (Jones & Magarey, 2001) and influences of all components of the pain state (Gifford 1998, 2000, Jones et al 2002). Some examples include:
• Treatment of the highly irritable, severely painful shoulder with gentle passive movement may be extremely effective, if the technique used is performed slowly, smoothly and with continuous awareness of the effect on the subject's symptoms (Figure 4). Traditionally, passive movement within this framework has focused on movement of the glenohumeral joint itself. Benefit can similarly be achieved through movement (passive or active), such as scapulothoracic mobilisation or soft tissue techniques to structures that are not necessarily painful. Here the technique is addressing a contributing factor (for example, increased scapulothoracic or scapulohumeral muscle tone) that, in turn, may reduce the load on the glenohumeral source(s) of the symptoms.

Figure 4. Postero-anterior glide performed with the arm supported in a position of maximal comfort for the patient

• Treatment of a stiff glenohumeral joint by sustained passive stretch at end range in the most restricted direction, combined with mobilisation of restricted coupled translations may be effective. Sustained stretch is effective in both reduction of muscle tone and generating alteration in the plasticity of collagen (Butler et al 1978, Stanish et al 1990, van Wingerden 1995). For example, the humeral head in a stiff shoulder can frequently be seen to sit anteriorly relative to the glenoid. A combination of antero-posterior (AP) glide with glenohumeral flexion as a stretch sustained at end range with small oscillations may be appropriate. Alternatively, holding flexion at end range and mobilising either the AP or a postero-anterior (PA) glide may be useful (see Figure 5A and B). Often, use of all three variations proves most effective.

Figure 5. Mobilisation of glenohumeral flexion for stiffness
A Combined with an antero-posterior glide at the limit of flexion
B Combined with a postero-anterior glide at the limit of flexion
If the stretch is associated with pain, it will be more effective if applied very slowly, encouraging the subject to relax as the movement is taken further into range. Any muscle guarding should make the therapist wait until the subject is again able to relax before proceeding, all the time encouraging cooperation with the procedure. Once end range is achieved, any mobilisation should be performed slowly through a small amplitude, again to allow maintenance of the relaxation necessary to make any stretch on non-contractile structures effective. Such stretching is likely to produce a degree of soreness in the stretched tissues which can be relieved by following the stretch with large amplitude, slow, smooth passive movement in the same direction as used for the stretch (Figure 6). The amount of such “easing off” required depends on the degree of pain associated with the stretch and the level of irritability of the condition.

Figure 6. Large amplitude mobilisation into flexion, often used as an “easing off” technique following stretching into flexion

- During normal movement into elevation, the subdeltoid component of the subacromial bursa folds in on itself with the fold gliding easily under the acromion (Birnbaum & Lierse 1992). In the presence of subacromial impingement, this normal infolding cannot occur. On ultrasound imaging, the bursa can be seen to buckle and jam under the acromion, with no further movement possible (Pfund et al 1998a,b). The results of ultrasound imaging are not always available to the clinician, but results of clinical differential testing can direct choice of treatment. If pain in the quadrant position, for example, were increased with subacromial compression, a subacromial source to the symptoms can be hypothesised (Maitland 1991). If the presentation is severe or irritable, mobilisation of the humeral head against the acromion can be performed through a large amplitude with subacromial distraction, allowing movement of the painful structures within the subacromial space without the pain-provoking impingement. Provided reassessment demonstrates effectiveness, the technique can be progressed by repeating the movement without the distraction and, eventually, under controlled degrees of compression (Figure 7). The mechanism by which this approach is effective is not known, but it may include a breakdown of adhesions within the bursa with subsequent improvement in friction free movement and a reduction in buckling as the bursa slides under the acromion.

Figure 7. Glenohumeral quadrant with subacromial compression

- If differentiation demonstrated that the disorder appeared more related to stress on the glenohumeral capsuloligamentous structures, mobilisation directed specifically at the painful movement itself would be more appropriate, with the strength and amplitude of the technique determined by analysis of the movement diagram of the affected movement (Austin et al 1996, Magarey 1986, Maitland 1991). Whereas in other areas,
large amplitude physiological movements may be recommended, the close proximity and frequent involvement of subacromial structures mean that large amplitude physiological movement may aggravate a shoulder problem as painful catching can occur through range. Instead, small amplitude movements around the quadrant, performed slowly and carefully to the onset of pain (P1) can be effective (Figure 8).

Figure 8. Treatment with the shoulder quadrant, performed with support against the therapist’s forearm and body to enhance patient relaxation

The examples provided here provide a snapshot of the situations in which passive treatment can be beneficial for reduction in pain or increase in range of movement of the glenohumeral joint. Most conditions around the shoulder also require an evaluation and treatment of soft tissue mobility and sensitivity and dynamic control of the glenohumeral joint and scapula on the thoracic wall, as a component of a total body assessment of motor control. Our approach to evaluation and management of dynamic control of the shoulder complex is provided elsewhere (Magarey and Jones 2003).

Whatever approach dominates management of any particular patient problem, it will only be optimally effective in the presence of good clinical reasoning and a sound knowledge of the clinical patterns associated with shoulder dysfunction and other issues that might impact on a patient’s presentation. Critical reflective analysis of our own examination and treatment approach, based on continual re-assessment of the effect of our interventions is essential (Jones & Magarey, 2000).

**Summary**

This paper has presented one approach to examination and management of the glenohumeral joint and subacromial space. It includes discussion of those examination procedures found to be effective in distinction of involvement of different local structures. An approach to use of passive mobilisation techniques for the glenohumeral joint found useful clinically in particular situations is presented.

**References**


Magarey ME, Jones MA 1991: Clinical examination and management for minor instability of the shoulder complex.

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