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Shoulder disorders and occupation



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A B S T R A C T

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Shoulder pain is very common, and it causes substantial morbidity. Standardised classification systems based upon presumed patho-anatomical origins have proved poorly reproducible and hampered epidemiological research. Despite this, there is evidence that exposure to combinations of physical workplace strains such as overhead working, heavy lifting and forceful work as well as working in an awkward posture increases the risk of shoulder disorders. Psychosocial risk factors are also associated. There is currently little evidence to suggest that either primary prevention or treatment strategies in the workplace are very effective, and more research is required, particularly around the cost-effectiveness of different strategies.

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Introduction and scope

According to population surveys, shoulder pain affects 18–26% of adults at any point in time [1–4], making it one of the most common regional pain syndromes. Symptoms can be persistent and disabling in terms of an individual's ability to carry out daily activities both at home and in the workplace [5,6]. There are also substantial economic costs involved, with increased demands on health care, impaired work performance, substantial sickness absence and early retirement or job loss [7–10].

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The shoulder has evolved to withstand heavy physical demands and to do so over an unusually wide range of motion. To achieve this, it is not a simple 'ball and socket' joint but rather a complex composed of four articulations and a supporting arrangement of bones, muscles and ligaments within and outside of the joint capsule. However, its complexity and the nature of the demands on it make it susceptible to a range of articular and peri-articular pathologies. Shoulder pain has a diverse range of causes (Table 1). In addition to local pathologies, shoulder pain may be referred from the neck causing symptoms that may be difficult to distinguish clinically from those localised to the shoulder. Moreover, pain may be experienced in the shoulder referred from abdominal pathologies affecting the diaphragm, liver or other viscera. Although the referred abdominal pathologies are outside the scope of this chapter, the range of specific shoulder disorders and overlap with neck conditions will be considered, particularly in relation to work and workers with specific occupational exposures.

Shoulder anatomy

The extraordinary flexibility of the shoulder joint is achieved through four articulations: gleno-humeral, acromioclavicular, sterno-clavicular and scapulo-thoracic. Stability is therefore reliant upon a functional system of musculo-tendinous support both within (the rotator cuff) and outside of the joint capsule. However, its complex design leaves it prone to injury and sprain/strain particularly under conditions in which it is excessively overloaded. For example, the physiological movement of abduction

Table 1
Differential diagnosis of shoulder pain.

Referred pain	
Neck	Mechanical neck pain Cervical spondylosis Brachialgia
Intra-abdominal	Liver disease Splenomegaly Perforated bowel
Pulmonary	Apical lung cancer Pulmonary oedema Pulmonary embolus
Diaphragmatic	Phrenic nerve palsy Pleural plaques
Cardiovascular	Stroke Acute coronary syndrome (typically left sided)
Systemic disease	Malignancy (primary/secondary) Infection (septic arthritis, tuberculosis)
Inflammatory rheumatic diseases	Polymyalgia rheumatica Rheumatoid arthritis Psoriatic arthritis Crystal arthritis
Articular pathology	Osteoarthritis of gleno-humeral joint Osteoarthritis of acromioclavicular joint Milwaukee shoulder
Bone pathology	Tumour (primary or secondary) Avascular necrosis Paget's disease Fracture
Soft tissue local pathology	Rotator cuff tendinopathy/impingement syndrome Biceps tendinopathy Adhesive capsulitis Calcific tendinitis Subacromial bursitis Shoulder instability Labral tears
Pain syndromes	Fibromyalgia syndrome Shoulder–hand syndrome

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