

Prevention of Rheumatic Disease



Since editing a monograph on the primary prevention of rheumatic disease in 1994¹ much new information has accumulated. Except for back pain, which is the commonest pain of all, there has been little concerted effort to apply the lessons learned. The European Action Towards Musculoskeletal Health proposes a public health strategy to reduce the vast public burden of musculoskeletal (MSK) conditions. In response to this, Woolf and Akesson² have assembled a review of the possibilities for primary prevention and control (secondary prevention) of the MSK disorders, including arthritis. They emphasize the formidable size of the problem: Up to 30% of adults are affected at any one time in the UK.

The COPCORD studies³ show that this is a major problem in more than 12 developing countries, although predictably less than in developed nations, where populations are older. This has highlighted the need for internationally agreed on diagnostic criteria⁴. Agreement is difficult, as the various conditions often overlap and more than one condition often coexist in the same patient⁵.

Rheumatologists who deal mainly with rheumatoid arthritis (RA) tend to be pessimistic about primary prevention, as controllable causes of RA, and the other inflammatory arthritides, remain elusive. They do have increasing success in secondary prevention using the biological agents.

Osteoarthritis (OA) is the most common form of arthritis. Evidence accumulates that this is not simply an inevitable result of aging but is of multifactorial causation. Hunter, *et al*⁶ list occupation, physical activity, quadriceps strength, joint injury, obesity, diet, hormones, and bone density as modifiable factors for knee OA. There is a high risk of OA in those doing heavy work⁷. We have known since the classic epidemiological studies of Lawrence and Kellgren⁸ that miners are at high risk of lumbar disc disease and what has been called degenerative disease of the spine. The word "degenerative" is in fact misleading as it implies inevitable deterioration due to age, thereby diverting attention from the other risk factors. The same word appeals to insurers, who interpret it to mean age causation so they can deny coverage. Employers often deny responsibility for MSK disorders in employees although, paradoxically, they would gain from

prevention by retaining the skills of experienced staff and would save the costs of retraining new staff.

Basic research⁹ has suggested a physical mechanism for the failure of cartilage. The elastic decorans bonds maintain the structural shape modules and elasticity of cartilage. If these are stretched to breaking point, the cartilage fails, with subsequent enzymatic breakdown. This supports the other evidence that avoidance of persistent overload and accidents will reduce the prevalence of OA, which otherwise will rise with the increasing average age at death in developed nations.

Attempts to control cartilage breakdown or to promote cartilage healing with glucosamine have not yet proved to be effective. As in RA, joint replacement has been a great advance in minimizing impairment from end stage hip and knee arthritis.

MSK disorders are commonly work related and caused by the occupation. The US National Institute for Occupational Safety and Health (NIOSH) review¹⁰ of workplace factors focuses on repetition, force, posture, and vibration. This remains a standard reference despite being published more than a decade ago. The US National Research Council¹¹ has taken this further, drawing on a wide spectrum of expertise. Specialists in occupational medicine are in a key position to intervene but many may be too close to insurers and employers to be impartial. Unfortunately legal disputes over compensation insurance have led to polarization of views from those who question causal associations¹² to those who accept work causation. This has delayed or prevented prevention.

Back pain education aimed at prevention has been shown to be effective and feasible¹³. Upper limb pain is common in industry. A two year prospective study of 1513 subjects¹⁴ showed that highly repetitive work predicted arm pain; heavy lifting and prolonged standing predicted low back pain; and heavy pushing or pulling predicted lower limb pain. These all present opportunities for prevention and control. Clearly there is ample scope for ergonomic intervention in work-related upper limb pain¹⁵.

Chronic neuropathic pain syndromes are often said to be idiopathic (of unknown cause). This word should be used with caution as evidence accrues that such pain syndromes

are multifactorial in origin. They can be induced by sustained nociceptive input from injuries, physical disease, and psychosocial factors, which can also derive from work stresses¹⁶. These factors are susceptible to prevention¹⁴. Gender and genetic predisposition are not. Fibromyalgia, often said to be idiopathic, is increasingly regarded as the end of a spectrum of pain disorders rather than as a discrete disease¹⁷.

Much progress has been made in the prevention and control of osteoporosis. This ranges from physical fitness to calcium, vitamin D and bisphosphonate medication, and the avoidance of falls and so fractures¹⁸. Osteoporosis increases the risk of falls in the elderly that are common causes of low force fractures, joint damage, and mortality.

Precise measures of bone density are now widely available in developed countries. In developing countries only calcium and vitamin D are available for prevention although these populations are usually more physically active.

The MSK complications of infectious diseases such as sexually transmitted diseases, AIDS, and tropical disease, detailed in the monograph¹, are dealt with by infectious and tropical disease specialists. Rheumatic fever and rheumatic heart disease are now well controlled in the West but remain a major challenge in indigenous populations such as Australian aborigines¹⁹.

Gout prevention is also possible. Severe endemic gout in Sulawesi, Indonesia, was shown to be due to a locally made liquor. A successful control program has been initiated involving education of the local general practitioners²⁰. Allopurinol has provided effective control of gout. Gout induced by thiazide diuretics is preventable.

Health administrations focus on lethal diseases at the expense of chronic disabling MSK disorders although these are so prevalent and cause so much longterm pain and suffering with very high direct and indirect costs²¹. Most musculoskeletal disorders do not contribute to hospital costs, except for joint replacements and the connective tissue disorders, which are much less common and are not preventable except for drug induced lupus. Prevention of obesity, alcohol and smoking, and infectious diseases is covered by existing public health programs as they increase the risk of many lethal diseases.

Education of both the public and the medical profession will be necessary for an effective program²². This will take time and patience. Lawrence⁸ detailed the risk of musculoskeletal disorders in a number of industries half a century ago. It took as long for the UK Royal Navy to apply Dr. Lind's discovery that citrus fruit prevented scurvy, so don't despair.

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