Do repetitive tasks give rise to musculoskeletal disorders?

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Repetitive tasks can undoubtedly cause discomfort and pain, but whether they cause or worsen the pathology causing the pain is most uncertain. Research in this area is difficult as the 'work-related upper limb disorders' do not occur exclusively in workers and because there is no simple, reliable and reproducible test for most 'work-related upper limb disorders'. Furthermore many studies are difficult to interpret as they detect disease by the presence of symptoms: one would expect manual workers to complain of more symptoms than sedentary workers and symptom aggravation does not tell one anything about the causation of the underlying pathology.

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Repetitive tasks, especially if forceful, can temporarily make many musculoskeletal disorders more painful. This however does not imply that the repetitive tasks have caused or worsened the underlying pathological process, whether it be an osteoarthritic joint, a tendon catching in a tight tunnel, a degenerate tendon origin or a nerve under compression. Whether repetitive movements cause musculoskeletal pathologies can only be determined through carefully designed epidemiological studies and pathological studies which demonstrate that repetitive tasks can cause the histopathological changes found in 'work-related upper limb disorders' (surely better called 'use-related upper limb disorders') such as De Quervain's disease, carpal tunnel syndrome and epicondylitis.

The problems encountered by epidemiologists are enormous. One major problem is that there is no simple and reliable test for most of these disorders. Thus cases are usually detected by the presence of a symptom (usually pain) and/or clinical signs such as tenderness which are open to observer interpretation and have uncertain sensitivity and specificity. Asymptomatic disease, which nerve conduction studies and more recently MRI can demonstrate, may also produce problems. 'Mild' degeneration of the common extensor origin (the pathology of lateral epicondylitis) may cause no pain or tenderness in a sedentary person but may cause considerable discomfort to a heavy manual worker. Another problem is that none of the 'work-related upper limb disorders' occur exclusively in workers performing repetitive tasks. Thus work can only cause some cases of a particular condition at best: if work is responsible for only 10% of cases of a condition, epidemiological studies would have to be very large in order to demonstrate an association.

Despite the impressive size of standard pathology textbooks which contain detailed descriptions of the histopathology of the gastro-intestinal, cardiac and other systems, our knowledge of the pathological processes causing the work-related upper limb disorders is rudimentary and they are frequently incorrectly described in eminent textbooks. De Quervain's disease and trigger digit are commonly referred to as types of tenosynovitis, though histopathological studies demonstrate myxoid degeneration of the fibrous tendon sheath and no inflammation of the tenosynovium. Histopathological examination of the tenosynovium of patients with idiopathic carpal tunnel syndrome only occasionally reveals tenosynovitis and its features in workers, the unemployed and housewives are identical.

Proper epidemiological studies of the work-related upper limb disorders are few and far between but studies of patients undergoing treatment demonstrate that conditions such as carpal tunnel syndrome, epicondylitis, De Quervain's disease and trigger digit affect adults from all walks of life and do not appear to occur much more frequently in manual workers.

It is probably simplistic to consider these many musculoskeletal pathologies are caused by one factor alone. The pathology, whether narrowing of a fibrous tendon sheath, tendon degeneration or compression of a nerve, probably develops as a result of the summation of several constitutional and environmental factors, some of which are undoubtedly unrelated to work. Repetitive tasks may
be a contributory factor in some of these processes but their role does not appear great. Despite a plethora of studies, no clear and consistent causal link has been demonstrated between repetition and any musculoskeletal pathology.\textsuperscript{5,6} Many studies may simply show that musculoskeletal pain is aggravated by use of the affected part at work, just as it is aggravated by use of the affected part outside work.

REFERENCES


