

“Rehabilitation. Does it work? A review of the history and current best practice.”

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Purpose of the article

Back pain and musculoskeletal disorders are a major problem facing society. They are second only to stress as being the most common work related disorders in this country. The figures remain alarming:

- £2 billion cost to employers per annum (TUC 1998)
 - 2.7 million people receiving incapacity benefit representing 6.5% of the working age population (Department of Social Security and Department of Works and Pensions 2003)
 - 4 out of 10 people are affected by it
 - it is most common between the ages of 35 and 55

Many of these people will also be pursuing legal claims for their injuries and many will be out of work with little or no likelihood of returning to gainful employment or living a self sufficient life.

This paper examines the history of back pain, the development of what is now accepted as the current best practice and demonstrates that the available evidence confirms that rehabilitation does work and does restore people's lives

Background

In the introduction to the Clinical Standards Advisory Group Report on Back Pain published in 1994 the authors traced the history of back pain and interestingly pointed out that back pain and sciatica have affected man throughout recorded history. The oldest surviving surgical text, the Edward Smith papyrus from 1500 BC, includes a case of back strain. There is, however, no evidence that back pain has changed. The symptom of back pain appears to be no different, no more frequent and no more severe than it has always been.

What has changed is how back pain is understood and managed. The symptom of back pain is the common link between a number of serious spinal diseases, the simple backache which most people have at some time in their life and low back disability. Spinal deformities and fractures have been recognised from the time of Hippocrates. However, back pain received little medical attention in days of epidemics, famine and short life expectancy. Before the nineteenth century back pain was dismissed as “fleeting pains” or rheumatics. As far as can be determined few people became chronically disabled by simple backache.

The nineteenth century saw two changes in thinking which laid the foundations for what

became the accepted approach to back pain. The first was that pain came from the spine and that it was due to injury. The syndrome of “spinal irritation” suggested, for the first time, that back pain arose from the spine and involved the nervous system. The physical pathology of spinal irritation was never identified and it was soon realised that many of the symptoms described in this syndrome were “hysterical”. Spinal irritation disappeared as a diagnosis, but the belief that the spine was the source of back pain, that the nervous system was involved and that the painful spine was somehow “irritable” was firmly established. The second was the development of “railway spine”. Accidents in the building of the railways during the nineteenth century led to a spate of serious injuries. Public concern led to legislation and the start of the modern social security system. Only then did back pain begin to be blamed on trauma. It is not easy to appreciate that throughout history, chronic back pain had never been thought of as due to injury. Only with the diagnosis of railway spine was it first proposed that simple backache might be due to minor injury to the spine. The new laws led to increasing legal activity and medical interest, with many claims for compensation for minor injuries. Again, no pathological basis was ever found for railway spine and the diagnosis fell into disrepute. But the concept of back pain as an injury and the principle that it should attract compensation remains.

The nineteenth century also saw the birth of orthopaedics as a medical specialty which was to have increasing influence on the management of spinal disorders. For the first time, back pain and sciatica were linked and treated by the orthopaedic principle of therapeutic rest. Patients with serious spinal injuries or disease had always gone to the sick bed, but that had been seen as an effect of the injury and never a treatment. Patients with back pain, or sciatica had never been treated by rest. Indeed, as early as 1743 Sydenham had written “for keeping bed constantly promotes and augments the disease”. Orthopaedics for the first time proposed rest as a treatment.

The discovery of the “ruptured disc” in 1934 provided the focus which brought these ideas together. Only then was it generally accepted that back pain was coming from the spine itself, that it was commonly due to injury and that it should be treated by rest. After World War II there was a great expansion in medical care and social support for sickness in general and in the influence of orthopaedic surgery and neurosurgery in low back disorders. It is from that time that the modern epidemic of back disability began.

Significantly, but almost ignored by mainstream medicine which was locked into the newly created NHS, major advances in the treatment of the problem back and other disabilities were being made by the armed services during and after the second world war. It became clear during the war that, with the acute shortage of highly trained skilled manpower and aircrew it was essential that men, when injured, should be returned to their duties in the best possible physical and mental condition in the shortest possible time. At the then RAF Medical Rehabilitation Unit, Headley Court, Surrey (which is now known as the Joint Services Medical Rehabilitation Unit), the aim of rehabilitation was the highest quality result in the shortest possible time. This was achieved by the co-ordinated efforts of the rehabilitation team through positive, intensive, almost aggressive, treatment. Of the 22,000 airmen admitted to rehabilitation between 1941 and 1945, 77% returned to full duty, 18% returned to modified

duty and only 5% were invalided out of the RAF. An example of the beneficial effects of this dynamic approach is that of an RAF gunner who in 1941 was admitted to a civilian hospital with a torn and displaced semilunar cartilage in his knee. His surgery had been successful, his wound had healed well without complication, infection or arthritis and he had daily treatment in the massage (physiotherapy) department. After 10 months' treatment he was more incapacitated than on arrival, with weak and wasted thigh muscles, with only half the normal movement in the joint. He also had a bad limp, was unable to run, was depressed and resentful. However, within 7 weeks of transfer to the RAF rehabilitation unit he was fit for duty.

The answer lay in a totally different and dynamic method of treatment, which was diametrically opposed to the traditional hospital treatment of rest and no active, intensive rehabilitation.

In 1979 the DHSS Working Party on Back Pain (DHSS 1979) found that "there is a profound and widespread dissatisfaction with what is at present available to help people who suffer from back pain". They also concluded that "unfortunately medical practice appears at times to compound the situation by pursuing policies for management and certification that needlessly prolong the period of incapacity". Since then the problem has become much worse. There is now much greater awareness of the problem of back pain and disability. It is widely recognised that present health care and NHS services are unsatisfactory and are not solving the problem.

All industrialised nations face a serious and rapidly worsening epidemic of low back pain and disability (Fordyce et al. 1994). Back pain is a problem to patients, to doctors and therapists and to society. It is a problem to patients because they cannot obtain clear information and advice on its cause, on how it should be managed and its likely future effects. It is a problem to doctors because they cannot diagnose any definite disease or offer any medical cure. To society, back pain is now one of the commonest and most rapidly increasing costs of work loss, demand for health care, demand for State Benefits and escalating compensation claims.

Changes in practice

Chronic low back pain is resistant to treatment and patients are often referred for multidisciplinary treatment. Multidisciplinary treatments for back pain evolved from pain clinics, which originated after the second world war (Fishbain 1995). Initially, multidisciplinary treatments focused on a traditional biomedical model and in the reduction of pain. In the early seventies with the pioneering work of W.E. Fordyce and associates (Fordyce 1973), clinics started to apply behavioural methods based on operant conditioning to reduce disability. Current multidisciplinary approaches to chronic pain are predicated on grounds of a conceptual shift away from a restricted biomedical model and towards a multi factorial model of interrelating physical, psychological and social/occupational factors (Waddell 1996; Turk 1987). Accordingly, multidisciplinary bio-psychosocial rehabilitation programs should assess

and manage these dimensions of chronic low back pain.

Over the last decade research literature in this area has focused on the educational approach usually referred to as back schools (Zachrisson 1980), and on intensive functional restoration programmes (Mayer 1987; Gatchel 1992; Hazard 1995). Back schools usually include a mix of didactic and exercise sessions directed by a health care professional for groups of subjects with low back pain. Functional restoration consists of intensive supervised training guided by repeated assessment of physical capabilities and function. Its explicit goal is to improve performance of daily activities and of occupational tasks. Most functional restoration programmes incorporate counselling and job related activities. Some multidisciplinary teams follow functional restoration principles, but others do not. Recent rigorous systematic reviews have dealt extensively with back schools (Cohen 1994; Koes 1994; Di Fabio 1995; van Tulder 1996).

Multidisciplinary treatments for chronic pain have been the subject of more than a hundred non-randomised studies and more than a dozen non-systematic reviews, both of which are prone to many sources of bias. (Cook 1997) There are two published systematic reviews on this topic. Flor et al Flor 1992 reviewed 65 controlled and non-controlled studies available in 1990. They calculated overall within-and between-group effect sizes. They concluded that the reviewed studies supported the effectiveness of multidisciplinary treatments, although the studies were of marginal methodological quality. Cutler et al Cutler 1994 combined studies of multidisciplinary treatments with other non-surgical therapies, a total of 37 controlled and non controlled studies. They concluded that non-surgical treatment of chronic pain does return patients to work. Two other unpublished systematic reviews also supported the effectiveness of multidisciplinary treatment and drew attention to methodological limitations of existing trials (Curtis 1993; Evans 1996).

Estimating treatment effects in the absence of a control group and pooling together controlled and non controlled studies implies a high risk of bias. Furthermore, the published systematic reviews did not include randomised controlled trials now available.

Current guidelines and practice

The Clinical Standards Advisory Group Report – Back Pain 1994 rejected the previous thinking and made a number of radical recommendations for the treatment of back pain, which were taken up by the Royal College of General Practitioners. The consensus is:

- if there is no return by 13 weeks, primary care has failed and chronic pain and disability are then likely
- in such cases secondary referral is to be considered to; rehabilitation/functional restoration and/or pain management and/or vocational assessment and guidance.

Waddell (1998) introduced a new model of care for back pain. Known as the “Biopsychosocial model” he rejected the concept that the condition can be explained in disease terms and that physical findings, behavioural manifestations and loss of function should be integrated. The argument is that beliefs, psychological distress and illness behaviour affect pain and disability

and response to treatment. Cultural and socioeconomic factors profoundly influence the epidemiology of low back disability. He also argued that at 3-8 weeks of back pain the psychologic factors are better predictors of clinical progress, pain disability and return to work at one year than any biomedical measures. He pointed out that disuse causes more severe disability and reinforces illness behaviour, thus creating a cycle where illness behaviour, disability and work loss reinforce depression and distress, which in turn increase illness behaviour and disability. In summary, care seeking and disability due to low back pain depend more on complex individual and work related psychosocial factors than on clinical features or physical demands of work.

In spite of the recommendations of the Clinical Standards Advisory Group, the Royal College of General Practitioners, Waddell's seminal work and the evidence outlined earlier, there does not appear to be any significant change in the way the NHS treats chronic back pain. Patients are invariably routed through the orthopaedic service or triaged into the pain service or physiotherapy.

As in this country, so the pressure has been mounting in other western countries to find a solution to the back pain pandemic. Various treatment programmes have been developed and evaluated, the most recent study (Multidisciplinary biopsychosocial rehabilitation for chronic low back pain (Cochrane Review) Issue 2 2004) being that carried out by Guzman J et al in 2001. The objective of the study was *to assess the effects of multidisciplinary biopsychosocial rehabilitation on pain, function, employment, quality of life and global assessment outcomes in subjects with chronic disabling back pain.*

In carrying out the review the authors decided the following selection criteria to be used:

- Design; randomised controlled trials comparing multidisciplinary biopsychosocial rehabilitation with non-multidisciplinary control intervention
- Population; adults with disabling low back pain of more than 3 months duration
- Intervention; patients had to be assessed and treated by qualified professionals according to a plan that addresses physical and at least one of psychological, or socio/occupational dimensions
- Outcomes; only trials which reported treatment effect in at least one of pain, function, employment status, quality of life or global improvement
- Exclusion; pure educational interventions (back schools) and pure physical interventions were excluded.

Ten trials (12 randomised comparisons) were included. They randomised a total of 1964 patients with chronic low back pain. In their conclusions the reviewers looked at implications for clinical practice and came to the view that given the variability across multidisciplinary treatments, it is inappropriate to refer patients for multidisciplinary rehabilitation without knowing the content of the programme. The reviewed studies provide evidence that intensive (>100 hours of therapy) multidisciplinary biopsychosocial rehabilitation with a functional restoration approach produces greater improvements in pain and function for patients with disabling chronic low back pain than non-multidisciplinary rehabilitation or usual care. Less intensive treatments did not seem effective.

Their summary was that there was strong evidence that intensive multidisciplinary biopsychosocial rehabilitation with a functional restoration approach improved function when compared with inpatient or outpatient non multidisciplinary treatments. Less intensive interventions did not show improvements in clinically reviewed outcomes.

A new study, “*Psychology, Personal Injury and Rehabilitation*”, sponsored by the Association of British Insurers and the International Underwriting Association published in July 2004 examined what it is that delays some people’s recovery when their initial biomedical prognosis suggests they should be able to return to work promptly. Given that the liability and motor insurers spend well over £1bn a year on compensating personal injury claimants, this is a key issue for the industry . The main findings of the study were:

- psychological factors can delay recovery from injury significantly – or even permanently
- around three in 10 personal injury claims are aggravated by psychosocial factors and take much longer to recover than their pathology suggests
- our current system of rehabilitating and compensating people is out of date as it does not capture essential data about claimants, is fragmented and sometimes adversarial, is costly, unresponsive to emerging needs and slow
- there is a need to develop a co-ordinated, person centred approach to optimise recovery and control costs.

Conclusion

Multidisciplinary biopsychosocial functional restoration does work. The key essentials of any programme are:

- Treatment must be started as soon as possible
- The psychosocial risk factors must be identified as early as possible (The New Zealand “Yellow Flag” checklist or the 24 risk factors identified in “*Psychology, Personal Injury and Rehabilitation*” should be used)
- Assessment of the claimant/patient must be by a multi disciplinary team
- Treatment must be on a biopsychosocial model
- Treatment to be carried out by a multi disciplinary team to include –
 - a consultant in rehabilitation
 - a psychologist specialising in cognitive behavioural therapy and pain management
 - therapists experienced in the claimant’s/patient’s condition
- Treatment to be daily for the whole programme
- Treatment to be for a minimum of 100 hours
- Although there will be a core element common to every programme, each programme must be geared to meet the needs of the individual claimant/patient

It is essential to monitor the success of the programmes. Success is open to different definitions in the rehabilitation context but it is generally accepted as being the return to work or a self sufficient life style of the claimant/patient. To allow for comparison and study of

data, internationally recognised measurement of outcomes should be used.

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