

INDUSTRIAL/OCCUPATIONAL PHYSIOTHERAPY AN INTERNATIONAL PERSPECTIVE

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SUMMARY

An overview of the development and practice of Industrial/Occupational Physiotherapy in Great Britain, Australia, New Zealand, Finland, Sweden and Denmark is given. Training facilities and courses available in each country are mentioned. Barbara McPhee's recommendations for the development of this field of physiotherapy are quoted as suitable for South Africa.

INTRODUCTION

Industrial physiotherapy may be seen as a part of occupational health. Physiotherapists all over the world should become more aware of their potential in this field in the face of increased emphasis on prevention, both from the medical profession and industrial concerns. Increased technology is leading to increased hazards at the man/machine interface. Preventive medicine is slowly being supplanted by "total worker well-being" in Occupational or Industrial Health Departments.

GREAT BRITAIN

The first industrial physiotherapist started work in 1923 in the medical division of Arthur Guinness and Son in Dublin. From 1923 to 1947, when the Association of Chartered Physiotherapists in Industry (A.C.P.I.) was formed as a Specific Interest Group of the Chartered Society of Physiotherapy (C.S.P.), industrial physiotherapy grew slowly, remaining basically a duplication of the hospital outpatient department in an industrial setting. By 1979 A.C.P.I. membership stood at over 100. Due to the present economic situation in Britain A.C.P.I. membership has fallen to 70 in 1982. Industrial physiotherapists in 1979 were employed in over 14 different types of industries and business concerns (see Table)

The ratio between physiotherapists and employees was determined by the A.C.P.I. as one fulltime physiotherapist to 4000 employees for therapeutic, rehabilitative and preventive treatment. Chris Hayne received a Fellowship from the C.S.P. in 1977 for his dissertation entitled "The Physiotherapist in Modern Industry". He now specializes in

OPSOMMING

'n Oorsig van die ontwikkeling en praktyk van Industriële/Beroepsfisioterapie in Groot Brittanje, Australië, Nu-Seeland, Finland, Swede en Denemarke, word gegee. Opleidingsfasiliteite en kursusse beskikbaar in elke land, word genoem. Barbara McPhee se aanbevelings vir die ontwikkeling van hierdie veld van fisioterapie word aangehaal as geskik vir Suid-Afrika.

INDUSTRIES EMPLOYING INDUSTRIAL PHYSIOTHERAPISTS IN U.K. (1979)

Chemicals	13
Steel	13
Consumer Products	11
Motor and allied	10
Large offices	9
Engineering	8
Industrial Health units	4
Oil	3
Airports	4
Department stores	4
Atomic Energy	1
Aircraft Production	1
Pharmaceutical	1
Confectionery	2
Tobacco	2
Film (Kodak)	1
Forklift trucks	1

From *The Physiotherapist in Modern Industry* (1977).
Fellowship C.S.P. dissertation, Chris Hayne.

Occupational Health and Ergonomics. He sums up the role of the physiotherapist in modern industry as being one of teamwork with other members of the Health and Safety Group.

He says there are three main functions of the physiotherapist in industry:

- To provide a fully comprehensive service for employees, being reasonably located in relation to their place of work.
- To prevent disease and injury, especially of occupational origin.

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- To provide education and advice as necessary, related to the health, safety and welfare of the employees.

Mr Hayne stresses that the role of the industrial physiotherapist varies according to the composition of the team; for example, if an ergonomist is not employed, the physiotherapist can undertake basic ergonomics.

Ergonomics

Ergonomics is defined, in the rules of the Ergonomics Research Society, as the study of the relation between man and his occupation, equipment and environment, and particularly the application of anatomical, physiological and psychological knowledge to problems arising therefrom.

Training facilities

Training facilities for physiotherapists in Occupational Health do not at present exist in the U.K. However, local branches of the C.S.P. and the A.C.P.I. run courses on various aspects of occupational and industrial health, particularly with regard to the preventive aspect, and demonstrations of correct manual lifting and handling techniques. Through the Health Education Organization, which employs physiotherapists, courses are initiated for other members of the Health and Safety team, for example, Occupational and Industrial nurses and Safety Officers.

In 1979 there were seven physiotherapists working as graduate ergonomists, at universities, technical colleges, and as consultants to industry.

The main training facilities in the U.K. are:

- Department of Human Sciences, University of Technology, Loughborough, Leics.
- Department of Applied Psychology, University of Aston, Gosta Green, Birmingham.
- Department of Engineering Production, Birmingham. This department has an Ergonomics Information Analysis Centre which collects and disseminates ergonomics information.
- Department of Building, Manchester College of Science and Technology, University of Manchester.
- Department of Mechanical Engineering, University College, London,

AUSTRALIA

Australia has three pioneers of industrial and occupational physiotherapy. Barbara McPhee, employed as an Occupational Physiotherapist in the Commonwealth Institute of Health at the University of Sydney, is the first. She is involved in teaching, research and consultancy. Her main interest is ergonomics, and the design of furniture to lessen stress fatigue on workers, particularly office workers. She is presently involved in research in telecommunications systems and visual display units (V.D.U.'s), with particular reference to work posture, eye-strain and tenosynovitis of the wrist. Miss McPhee lectures on ergonomics to first, second, third and fourth year physiotherapy students.

She was awarded a Public Health Travelling Fellowship by the Australian National Health and Medical Research Council in 1977. She visited North America, Scandinavia, Europe and Britain, where she studied the scope, teaching organization and practice of occupational physiotherapy, and its role in occupational health research. She is now studying for a Masters degree in Public Health. In 1979 she, and another physiotherapist, Alan Howie, both executive members of the Australian Ergonomics Society, edited the proceedings of a conference on ergonomics and visual display units held in Sydney and Melbourne.

The second pioneer in industrial physiotherapy in Australia is Isobel Shaw. Although officially retired in 1976, she set out to prove that the physiotherapist can play a major role in the prevention of accidents. She used her segmented model, "Backache Bill", to illustrate the effects of incorrect manual lifting and handling in her lectures on safety and prevention to large companies, community groups, and members of the Australian Physiotherapy Association at Biennial Congresses in 1975 and 1977. Shaw (1977) writes on the role of the physiotherapist in accident prevention: *the fundamental aims of preventive physiotherapy are to develop good postural habits, to lay down guidelines to avoid skeletal and ligamentous strains, to develop good breathing control, and to teach habits of general relaxation.*

The third pioneer in Australia is Margaret Bullock, the first Professor of Physiotherapy in Australia. She obtained her Ph.D. with a thesis on anthropometry (the study of body dimensions). In 1974 Dr Bullock published a paper in *Control*, an Australian journal, on the general treatment and preventive role of the physiotherapist in industry. Her speciality is ergonomics. There are at present four physiotherapists in N.S.W. acting as consultants to industry and trade unions and lecturing on ergonomics and preventive health care. There are also fifteen community health physiotherapists in New South Wales.

Training in occupational physiotherapy

Barbara McPhee states:

Physiotherapists are well equipped by their training to practise ergonomics, particularly bio-mechanics, anthropometry and kinesiology (paper presented at the Cairo Congress in September 1981 entitled "The development of Occupational Physiotherapy in Australia"). There are five training institutions in Australia, and courses run for three to four years. In three states ergonomics is taught at under and post-graduate level. In 1983, a 10-hour unit entitled *Work and Health* will be offered to third year students in N.S.W. This unit aims to explain the role of occupational health professionals and the philosophy of occupational health practice. Two physiotherapists have completed the course for the degree of Master of Public Health in Occupational Health at the Commonwealth Institute of Health at the University of Sydney.

NEW ZEALAND

Industrial physiotherapy in New Zealand is still in its infancy largely due to the fact that there are very few industries of a size to warrant a full-scale service. Auckland, the largest city, has an industrial clinic employing a physiotherapist. The Accident Compensation Commission runs a wide range of accident prevention schemes. Physiotherapists are invited to take part. The Commission employs a physiotherapist experienced in ergonomics to advise industry and to run preventive programmes. Physiotherapists take part actively in the teaching of sports coaches, St. Johns Ambulance personnel, and in lecturing to all kinds of groups on self-care, accident prevention and early management of injury. The Education and Research Committee is also negotiating to have a physiotherapist attached to primary schools to advise on the above.

FINLAND

The Finnish Association of Industrial Physiotherapists was founded in 1976. The population of Finland is 4½ million and there are over 80 physiotherapists working in occupational health care. Industries employing physiotherapists include steel factories, sawmills, machine

factories, sugar factories, bakeries, biscuit and chocolate factories, state railways, some banks and an insurance company. Industrial physiotherapists also work in health centres which have been established jointly by several concerns.

Barbara McPhee visited Finland in 1977. She reports that a formal government funded system of occupational health education has been developed and the potential to upgrade standards of occupational physiotherapy through research and education exists only in Finland. Eighty occupational physiotherapists are employed as follows: 14 at the Institute of Occupational Health, eight at the central office in Helsinki and the remainder in large companies, group occupational health services or community health services.

Training in ergonomics is available at:

- The Institute of Occupational Health, Helsinki (courses of one day to four weeks for therapists working in occupational health care, contents being occupational health care, occupational safety and ergonomics).
- The Public Health section of the Physiotherapy Institute in Helsinki, where specialist physiotherapists do one year's study in occupational health and safety.

SCANDINAVIA

The first congress of the World Confederation for Physical Therapy was held in London in 1953. On the last day of this inaugural congress the main theme was *Physical Therapy in Industry*. A symposium on *Posture in Industry* was presented by three physiotherapists. Louise Heering (1953), who worked at the Municipal Hospital in Copenhagen, reported on her investigations into postural stresses associated with the seated and standing work positions.

As well as describing the correct way to lift using the *beni knee-straight back* technique, she discussed the correct seated position for typists and dealt in detail with the height of the chair in relation to the desk, the depth of the seat and the spinal support. This paper was probably the first on ergonomics presented by a physiotherapist. The second speaker, Astri Ostli (1953), stated that in Norway great importance was attached to the examination of the patient's working habits in order to ascertain the cause of stress. The third speaker, Dagmar Carleson of Sweden, was a full-time consultant in industrial gymnastics. She discussed *gymnastic pauses* in the work situation, which were conceived in 1920 and were by 1952 an accepted part of working life in 100 factories throughout Sweden. She emphasised that the gymnastic pause was of secondary importance to her work as a physiotherapist, but far more important in improving work postures and producing correct physiological patterns at work. Ideally this should begin with schoolchildren. All these ideas were revolutionary at the time, but to-day they are an accepted part of the normal treatment routine, and the Scandinavian countries remain in the forefront of industrial and occupational physiotherapy.

Sweden

The Swedish Physiotherapy Ergonomic Group was founded in 1973. Initially there were 35 members who worked in a variety of industries and companies as part of occupational health teams. Their membership now stands at over 300. Thirty per cent are employed by local authorities, 50% by private industries and 20% are private practitioners with industrial clinics. The majority of Swedish industrial physiotherapists devote 50% of their time to routine treatments and the other 50% to shop-floor ergonomics and employee educational training programmes. Over 100 factories employ physiotherapists.

Training

The Swedish physiotherapy training does not deal with the subject of ergonomics or occupational health in any great detail. In an attempt to remedy this, the Swedish Physiotherapy Association, in conjunction with the Swedish Employers Federation, has organized courses in these subjects. The courses are of four weeks' duration, spread over six months. Every course has been oversubscribed so far. The following rules of professional competency for Swedish industrial physiotherapists were confirmed by the Swedish delegation of occupational health in 1977:

- To become an authorized occupational health physiotherapist, all physiotherapists must have at least two years' post-graduate experience in social medical care, i.e. working with other physiotherapists under supervision as in hospital. Also they must obtain special education in occupational health approved by the National Board of Safety and Health.
- The approved education is arranged by the Union of Swedish employers.
- Because of the rapid expansion of occupational health physiotherapy the approved education may be undertaken at the first opportunity.
- It is planned in the future to insist on a three-month "superintended" period of work in industry before professional competency is gained.

The physiotherapist in occupational health should be directly subordinate to the head of the occupational health team in a post as registered physiotherapist in occupational health (Candell, 1978).

The Swedish Physiotherapy Ergonomics Group is now affiliated to the A.C.P.I. This is the first important step towards the creation of an International Industrial and Ergonomic Physiotherapy Group. The Swedish group has already created links with their colleagues in Norway, Denmark and Finland, in the same way that the A.C.P.I. has American, Australian, New Zealand and South African members who will, it is hoped, create their own groups in the future.

Denmark

In 1972 a group of Danish physiotherapists established the equivalent of a C.S.P. Specific Interest Group. There are over 50 members working full-time in industry as consultants and training employees in the basic principles of ergonomics. Danish industrial physiotherapists are employed in educating teachers and schoolchildren in ergonomics and kinetic handling. They believe that a school leaver should be fully versed in the essential principles of physical self-preservation from back injuries and sprains of muscles and ligaments. Consumer guidance is given by industrial physiotherapists using portable displays and other methods to illustrate correct posture and lifting techniques in the home, at work and in recreational activities.

Training

Training courses are available at the Technical University of Denmark and the Copenhagen College of Physiotherapy. At the latter students requested in 1975 to have part of their hospital trainee period converted into a factory trainee period. This has become a permanent arrangement for the majority of students. It consists of a theoretical introductory week and a five-week trainee period at a factory selected by the teachers. A five-year period of experience with the work-environment has made it evident that this is the only viable concept to create a real change in working conditions.

CONCLUSION

In conclusion a quotation from Barbara McPhee's address at the XXth International Congress on Occupational Health, Cairo, 1981, since the recommendations hold good for physiotherapists in South Africa:

If physiotherapists in Australia are to play a part in occupational health and ergonomics, and develop the relevant skills, they must first identify the areas in which their expertise can be used most appropriately.

Secondly, they must ensure that both under and postgraduate training is available in these two subjects, that it meets the need of the physiotherapists interested in working in these areas, and that it is of the highest possible standard.

Thirdly, physiotherapists must promote their involvement, and demonstrate their effectiveness both to other health professionals and industry generally.

Fourthly, high quality research in occupational physiotherapy is essential and urgent if the field is to have credibility and is to expand.

Australian physiotherapists have a unique opportunity to contribute substantially to the body of knowledge presently available in occupational health and ergonomics, and to keep the Australian work-force healthy.

Whether or not they do so will largely depend on them.

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