

# EDITORIAL (PART I)

## *The History and Present Scope of Physical Therapy*

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Physical therapy is a relatively new discipline that may be unfamiliar to many readers of this journal. Wide differences among countries make it difficult to summarize the current status of physical therapy precisely. However, the following synopsis offers a reasonably accurate picture that may serve as an introduction to the field.

### AN OVERVIEW OF PHYSICAL THERAPY TODAY

**Education.** The basic program to become a licensed physical therapist usually requires 2–4 years full-time postsecondary study. The curriculum emphasizes a wide variety of basic and clinical sciences along with study of therapeutic theory and methods. A substantial period of supervised clinical practice also is required. In some countries educational programs are based in a university or technical college and lead to an academic degree; in others they are located in a hospital or separate school and lead to a diploma or certificate. Advanced professional education is provided primarily through a wide variety of short courses and workshops on specific topics; however, in several countries university master's and doctoral programs in physical therapy now offer broader education in clinical theory and research.

**Work Setting.** The setting of physical therapy varies widely. Traditionally, most therapists were employed as staff in the physical therapy departments of hospitals and rehabilitation centers. Now, a growing number of therapists are self-employed in individually or group-owned private practices. Many others work in settings as diverse as schools, factories, home health agencies, primary care centers, and health clubs.

**Pattern of Practice.** Most physical therapy patients are referred by a physician, to whom the therapist sends periodic progress reports. Orthopedic surgeons have been a major source of patients for many years, but the scope of practice has widened; therapists now also receive referrals from both general practitioners and specialists in such fields as pediatrics, neurology, cardiology, physical medicine, thoracic surgery, psychiatry, and gerontology. In some regions it also is now legal for therapists to evaluate or evaluate and treat patients who have not been referred by a physician. However, collaboration with other disciplines remains an important element in practice. Physical therapists often work closely with clinicians in nursing, occupational therapy, speech therapy, social work, dietetics, and psychology, particularly when treating complex problems and when providing long-term care.

Patients are evaluated and treated individually or in group therapy, depending on their needs.

**Patients Treated.** Early work in the field emphasized the treatment of patients with poliomyelitis and acute orthopedic problems. Since the late 1950s, the field has broadened to include a variety of preventive and long-term care services as well as treatment for patients with a wide range of acute problems. Among the most frequently treated disorders are low back pain, painful conditions of the neck and shoulder, stroke, spinal cord and head injuries, burns, developmental disorders, sports injuries, arthritis, problems related to respiratory and circulatory functions, psychiatric disorders, neurological diseases, fractures, and other conditions requiring orthopedic surgery.

**Technology.** Physical therapists make extensive use of specialized therapeutic exercise techniques, manual methods of joint mobilization, and various forms of motor training. These methods may be supplemented by the use of physical agents, such as heat, cold, ultrasound, or electrical stimulation. Training in the use of supportive and assistive devices and in ambulation and self-care activities also is a common component of treatment. Evaluation of the patient and many forms of exercises have traditionally relied primarily on the therapist's personal skills in observing and handling the patient. These skills remain an important part of technology; however, such manual and observational techniques are now supplemented by a growing array of sophisticated instrumentation. Devices ranging from isokinetic muscle testing equipment to biofeedback tools and instruments for testing pulmonary function are now in regular use in the field.

**Levels of Personnel.** In many countries, all physical therapy services are provided by a single level of practitioner, the physical therapist, whose education and practice are summarized in this synopsis. However, in a few countries formal programs have been developed for the education and certification of two additional levels of personnel: the physical therapist assistant and the clinical specialist. Finland, Canada, and the United States are among the countries that make use of assistants to help meet the demand for services. Education of assistants is shorter (1–2 years) and more technical than that of the professional therapist, and assistants are usually expected to work in close collaboration with a therapist rather than independently. Formal recognition of advanced skills in a specialized area of practice is a fairly recent development and is still limited to a few countries. Both the training of assistants and certification of specialists remain controversial in many nations. Debate has been especially heated concerning short-term training of technical aides to provide basic rehabilitation services in rural areas of developing countries.

**Regulation.** In most countries, some form of state licensure or national registration is required for practice and for third-party reimbursement of physical therapy services.

**Reimbursement.** Charges are usually on a fee-for-service basis and are generally covered by governmental health care programs or private insurance.

## A BRIEF HISTORY OF PHYSICAL THERAPY

**Origins.** Physical therapy traces old roots to natural remedies such as massage and simple physical agents. In several European countries it began to emerge as an occupation during the 19th century (4). In some countries there were close links between physical training and physical education. The professional titles used today by

therapists in some countries remind us of this origin: “Krankengymnastik” in Germany and “Sjukgymnastik” in Sweden both mean gymnastics for the ill.

In many countries the impetus for the development of physical therapy services was increased by several shared historical events, including the two world wars and the poliomyelitis epidemics. For example, when the United States entered World War I, the country lacked formal rehabilitation programs for injured persons in both military and civilian life (8).

Intensive training programs for therapists were quickly established, and their work during the war provided a clear demonstration that physical therapy was a valuable adjunct to medical care. Throughout the next several decades a strong demand for physical therapy services was maintained by the need to rehabilitate thousands of new severely disabled polio patients each year. By the time that the polio vaccine was developed, therapists had become a familiar part of the scene in most hospitals throughout Europe and North America. During these early years, enthusiastic leaders in the field, most of them women, fostered the emergence of the new profession through energetic dedicated work, demanding little pay. With such idealistic purposes as a foundation, physical therapists in the 1990s are trying to achieve recognition and rewards commensurate with full professional status (5).

## DEVELOPMENT OF TECHNOLOGY

Therapeutic exercise is one of the principal forms of technology in physical therapy. Its development exemplifies the way in which many of the techniques used by therapists have evolved. Little was known about the very nature of movement until the past four decades, and, originally, exercises were entirely based on the knowledge of musculoskeletal anatomy. Gradually, treatment techniques were developed by thoughtful application of research in basic sciences, such as neurophysiology and physiology. Therapists learned that sensory, tactile, and proprioceptive stimulation can affect a motor response. They began to observe the normal neurodevelopmental sequence and to consider the need for sensory integration. Many of these early applications of research took the form of specific approaches named for the clinicians who developed them. Well known are methods of treatment associated with Rood, Bobath, Brunnström, Knott and Voss (proprioceptive neuromuscular facilitation), and Ayres (sensory integration). In spite of the fact that these processes involved considerable use of research from other fields, the techniques themselves were based largely on the clinical observations and impressions of the therapists who used them. Very little of the questioning done in the past occurred as a result of formal assessment of the technology through clinical research.

In time, the need for revision of the early techniques became apparent. Today, efforts are made to compare and combine many of these approaches and to add ideas drawn from other areas of research. A future step in attempting to develop effective therapeutic exercises may be the assimilation of research from many different fields into a model for motor learning (2). The time has come, however, when the substance of such a model would be accepted only as the result of clinical evaluation.

## SOME CURRENT TRENDS AND ISSUES

***The Growing Diversity of Practice.*** As the scope of physical therapy practice broadens, the individual practitioner increasingly experiences difficulties in meeting the various demands. In the clinic new technology is being added. The use of advanced

instrumentation was mentioned earlier. Acupuncture and the use of medical lasers are other examples of new therapy techniques, the value of which is praised by some therapists and doubted by others, yet which are spreading quickly. Simultaneously, therapists are turning growing attention to the humanitarian aspects of treatment. They are aware that their art lies in the combined mastery of various practical techniques and the delicate ability to gain the confidence of the patient, to establish a good interpersonal relationship, and to generate motivation for necessary cooperation. Often the problem being treated affects, or is affected by, the patient's entire way of life and its quality. One result of attempts to consider the whole individual has been the organization of psychosocial interest groups among therapists in several countries.

In addition to traditional clinical tasks, many therapists consider preventive health care exceedingly important. Such care may take the form of a workplace visit with a patient undergoing treatment in order to intercept the recurrence of a work-related injury. More extensive work in this area is carried out by therapists who often undergo special training and are exclusively employed for preventive health care. Unfortunately, such programs exist mostly within the private sector of health care and reach the general public, including most schoolchildren, inadequately.

**The Growing Demand for Services.** The prognosis for the future use of physical therapy services suggests a rapid increase. For example, in 1990 the number of licensed physical therapists in the United States was 70,000. The expected growth of demand between 1986 and 2000 is predicted to be 54,000 new jobs, an increase of 87% (3).

The educational systems of many countries will be strongly challenged to increase their outputs. However, a shortage of physical therapists with the academic credentials needed for appointment to university faculty positions may become a major constraint. Another challenge to the educational system will concern planning physical therapy curricula in such a way that this growing demand for more therapists, as well as the broadening scope of practice, are met. Basic programs face the problem that it is still not fully agreed upon which clinical skills are the most necessary for a new graduate (9). A 1989 Swedish study (1), based on 163 individuals, showed that many (61%) of the respondents felt that they had insufficient knowledge for their present work, although most (84%) stated that their basic training had been good or fair. The same study showed that most (84%) of the therapists interviewed had participated in postgraduate education, a practice that is common in many countries.

**Specialization.** Many therapists today are requesting official recognition of in-depth knowledge and skills that they have acquired within a specific area of clinical practice. The evolution toward specialization within a profession is a natural response on the part of interested individuals to increasing opportunities to perform advanced services. Opinions vary within the profession, however, on whether this will benefit the patient in the end. Specialization, some fear, will unavoidably also invite fragmentation of the patient's different needs. On the other hand, along with identification of areas of particular competence within physical therapy, stimuli for additional research and education might follow, thus enhancing the knowledge base in those areas. Development of specialties might also help analyze how physical therapy services are organized in relation to other health disciplines (6). It is unlikely that all areas of physical therapy will fit into an area of specialization, or that certification will be mandatory for working within a particular area. It is possible, although not yet demonstrated, that the treatment given by a specialized therapist is more effective and efficient and, therefore, less costly.

**Assessment of Physical Therapy Technology.** Many treatment methods used by physical therapists rely heavily on clinical experience gathered over many years rather than on assessment. To the practicing clinician whose attention is focused on the problems of individual patients, the idea of initiating formal cost-effectiveness studies may seem remote. This is especially true when there is a general belief that traditional technologies are valuable.

This situation is shared by many of the developing health occupations, which commonly are referred to as paramedical services. Watts analyzes this issue in "Editorial (Part II)" with respect to its future development.

A common feature of these occupations is the fact that they are quite new and rapidly evolving. An attempt to identify additional concrete factors that have affected past research efforts suggests the following for the field of physical therapy:

1. Until recently, the profession of physical therapy retained its traditional ties to the field of medicine, deriving much of its knowledge from research in medicine and other disciplines outside of physical therapy. As a result, the focus of the early research often differed from questions that would have been asked by physical therapists (7).
2. There is a shortage of thoroughly tested methods of measurement that have been applied to the field of physical therapy.
3. Until the past decade, basic physical therapy programs have offered little training in research design, objective data collection, and documentation.
4. Those therapists who do gather scientific data often fail to communicate their findings to the larger body of colleagues and health planners. The national journals published by many physical therapy organizations place only limited emphasis on reports of formal research, and there is only one international physical therapy journal (*Physiotherapy Theory and Practice*) that includes research papers from authors in many different countries.
5. Therapists who have earned an advanced academic degree discover that there are few clinical research positions available. They also have difficulties in obtaining a salary that matches their qualifications. Disappointed, some become instructors instead, while others embark on medical studies.
6. Physical therapy is a predominantly female profession, a fact that may have affected the speed of its scientific development. Many female scholars will recognize the complaint of a woman who recently concluded her doctoral studies: "I have made several breaks in my studies while raising my children. The story was different in my childhood: when my father wrote his doctoral thesis my mother had the entire family on its toes to serve him."
7. Therapists often feel that adding research to a crowded schedule would compete with time allotted to treating patients, thereby inflicting a moral injustice on the patients in the short run.

**Competing Priorities for Development.** Health planners, educators, and individual clinicians are all confronted with a growing need to be selective in the way that resources for physical therapy are used. In some cases this will depend on societal preferences and the values attached to serving different groups of patients and to achieving different health outcomes. However, wise choice also depends on the availability of objective data on the costs and effectiveness of available technology. The need for greatly expanded research in the field is obvious. Fortunately, one of the most encouraging characteristics of the physical therapy profession is the desire of its practitioners to learn more, coupled with a willingness to question and to be self-critical. A growing number of therapists have already undertaken work to evaluate and improve the technology that they use. The papers in this issue represent only a small sample of these efforts.

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