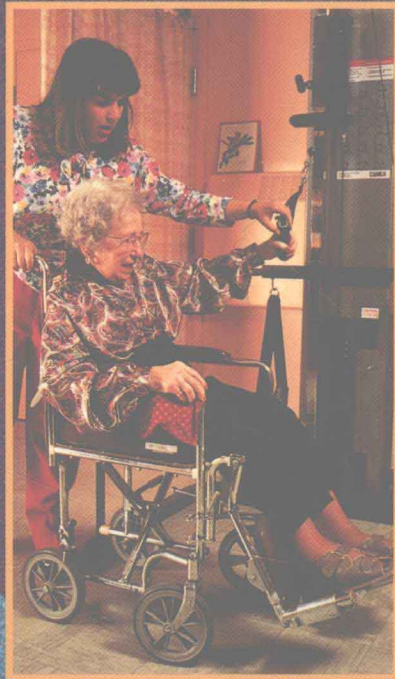


INTRODUCTION TO

PHYSICAL THERAPY



MICHAEL A. PAGLIARULO

Introduction to Physical Therapy

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Dedication

This book is dedicated to my father, Anthony, for his sense of responsibility and work ethic and my mother, Louise, for her complete unselfishness and commitment to our family.

As Italian immigrants to the United States with limited educational backgrounds, they survived the hard times of the Depression and World War II through perseverance and fortitude. I am grateful to their values, sense of pride in achievement, and insistence on advanced education.

Michael A. Pagliarulo

Preface

Physical therapists (PTs) and physical therapist assistants (PTAs) are members of an exciting profession with a proud heritage. As practitioners, we focus on the health needs of the public and maintain high clinical standards, while our academic programs sustain equally high standards to prepare the graduate for patient care. Yet, too frequently, the graduates know little about the evolution of this profession, or about the interdependence of PTs and PTAs, and begin their professional education with a narrow vision of our scope of practice.

Although there exist a variety of outstanding references to address the details of the techniques of practice, there is no comprehensive text at the *introductory* level. This text fills that void. It was designed to present a broad background on the profession and practice of physical therapy for the student beginning a PT or PTA educational program. It also serves students in other health-related programs who are interested in the roles and practices of PTs and PTAs.

The organization of the text is based on a logical approach to the subjects and consists of two components: Part I (Profession) and Part II (Practice). Part I begins with a chapter on the definition and evolution of the profession to serve as a foundation. Succeeding chapters describe the scope of activities and employment settings, the physical therapist assistant, the American Physical Therapy Association, regulations to practice, and concludes with current issues. Part II provides introductory level descriptions of primary practice areas with a somewhat chronological approach. That is, the section opens with a chapter on pediatric physical therapy and continues with chapters on neurological, orthopaedic, and cardiopulmonary physical therapy; these are followed by a chapter on physical therapy for the older adult. The section concludes with a chapter on selected topics not conveniently categorized by systems or chronology.

The beginning of each chapter includes a topical outline and list of key terms to provide the reader with an orientation to the subject. References are cited throughout the text, and suggested readings are briefly described to provide resources for further study. Study questions designed to promote analysis of issues conclude each chapter.

A distinct organizational plan was incorporated into the chapters in Part II to maintain a consistent approach. This includes a general description of the practice area, common clinical conditions, evaluation principles and techniques, and treatment principles and techniques. One or more case studies in each practice area provide a context and example of the evaluation and treatment activities in the given area. In accordance with the purpose of this text, the content of Part II was comprehensive, yet introductory in nature and not intended to provide details of skills for practice.

Other factors were consistent throughout the text. These included a “people first” approach to disabilities (e.g., “individual with cardiac dysfunction” rather than “cardiac patient”), and use of female as primary gender when referring to PTs or PTAs (This is consistent with current and historical distributions.). Every attempt was made to ensure current information (e.g., policies, issues) at the time of printing; however, with a rapidly evolving profession, updates must wait for further editions.

I believe this text will serve a distinct need for a comprehensive and introductory description of the profession and practice of physical therapy. It is a result of teaching an introduction to physical therapy course for over a decade without an adequate reference resource. I look forward to comments and feedback to enhance future editions.

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This text could not have been possible without the input and support of several individuals. This begins with hundreds of students who provided constructive feedback to enhance my teaching and classroom resources. I am grateful to Dr. Charles D. Ciccone, who encouraged me to transform an idea into reality. Each contributor provided an outstanding chapter in the respective content area. Dr. Katherine L. Beissner always provided thorough and helpful consultation in her reviews of the manuscript for the chapter on Physical Therapy for the Older Adult. The photographers, Dewey Neild and Bruce Wang, were sensitive to our needs and professional in their work. Subjects in the photos (patients, family, friends, colleagues, and students) were cooperative and generous with their time. Cheryl A. Tarbell and Debby Burris, who typed the manuscripts, and Bonnie DeSombre, who constructed the graphics, somehow maintained their sanity while providing timely documents. Personnel at Mosby Year-Book, Martha Sasser and Kellie White, were encouraging and informative throughout the project. Linda and Ken Wendling at Wordbench were efficient and creative in editing the manuscript and designing the layout. Finally, I am thankful to my wife, Tricia, and children, Michael, David, and Elisa, who always expressed an interest in and support of the text. They were an inspiration not only to complete this endeavor on time, but to do so with high standards.

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Introduction to Physical Therapy

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Chapter 1

Physical Therapy: Definition and Development

Michael A. Pagliarulo

“Physical therapy is knowledge. Physical therapy is clinical science. Physical therapy is the reasoned application of science to warm and needing human beings. Or it is nothing.”⁶

Helen J. Hislop, PT, FAPTA

DEFINITION

PHYSICAL THERAPY AS A PROFESSION

HISTORICAL DEVELOPMENT

Origins of Physical Therapy

Impact of World War I and Polio

Post World War I

Impact of World War II and Polio

Post World War II

1960s Through 1980s

SUMMARY

KEY TERMS

American Physical Therapy Association (APTA)

American Physiotherapy Association (APA)

American Women’s Physical Therapeutic Association

Division of Special Hospitals and Physical Reconstruction

National Foundation for Infantile Paralysis (“Foundation”)

physiatrist

physical therapist

physical therapy

physiotherapists

physiotherapy

practice act

profession

reconstruction aides

The profession of **physical therapy** currently enjoys a high demand for its services and an excellent outlook for growth. Although it has become popular and received substantial publicity, confusion remains regarding its unique characteristics. For example, how does physical therapy differ from occupational or chiropractic therapy? This chapter’s first purpose, then, must be to present and define this profession.

But to define it thoroughly, it is essential to also present a brief history of the development of physical therapy. A review of the past will demonstrate how the profession has responded to societal needs and gained respect as an essential component of the rehabilitation team. It will also link some current trends and practices with past events.

DEFINITION

Part of the confusion regarding the definition of physical therapy results from the variety of legal definitions which vary from state to state. Each state has the right to define this field and regulate the practice in its jurisdiction. These definitions are commonly included in legislation known as a **“Practice Act”** which pertains to the specific profession.

To limit this variety, a model definition (Box 1-1) was created by the **American Physical Therapy Association (APTA)** and was recently amended by the Board of Directors of that organization in 1995.⁷

Box 1-1

Model Definition of Physical Therapy for State Practice Acts*

Physical therapy, which is the care and services provided by or under the direction and supervision of a physical therapist, includes:

1. Examining and evaluating patients with impairments, functional limitations, and disability or other health-related conditions in order to determine a diagnosis, prognosis, and intervention; examinations include but are not limited to the following:
 - aerobic capacity or endurance
 - anthropometric characteristics
 - arousal, mentation, and cognition
 - assistive, adaptive, supportive and protective devices
 - community or work reintegration
 - cranial nerve integrity
 - environmental, home, or work barriers
 - ergonomics or body mechanics
 - gait and balance
 - integumentary integrity
 - joint integrity and mobility
 - motor function
 - muscle performance
 - neuromotor development and sensory integration

(Continued)

- orthotic requirements
 - pain
 - posture
 - prosthetic requirements
 - range of motion
 - reflex integrity
 - ventilation, respiration and circulation
 - self care and home management
 - sensory integrity
2. Alleviating impairments and functional limitations by designing, implementing, and modifying therapeutic interventions that include, but are not limited to:
- * • therapeutic exercise (including aerobic conditioning)
 - functional training in self care and home management (including activities of daily living and instrumental activities of daily living)
 - functional training in community or work reintegration (including instrumental activities of daily living, work hardening, and work conditioning)
 - manual therapy techniques, including mobilization and manipulation
 - prescription, fabrication, and application of assistive, adaptive, supportive, and protective devices and equipment
 - airway clearance techniques
 - debridement and wound care
 - physical agents and mechanical modalities
 - electrotherapeutic modalities
 - * • patient-related instruction
3. Preventing injury, impairments, functional limitations, and disability, including the promotion and maintenance of fitness, health, and quality of life in all age populations.
4. Engaging in consultation, education, and research.

* From Model Definition of Physical Therapy for State Practice Acts, BOD 03-95-24-64, Alexandria, VA, 1995, American Physical Therapy Association.

This definition identifies several activities which are inherent in the practice of physical therapy. First and foremost, physical therapy begins with an evaluation to determine the nature and status of the condition. Findings from the evaluation are interpreted to establish the diagnosis, goals, and treatment plan. Treatment is then administered and modi-

fied in accordance with the patient's responses. The interventions used are physical and focus on the musculoskeletal, neurological, cardiopulmonary, and integumentary systems. Other activities which are also important for effective practice include: consultation, education, and research. Finally, it should be noted that physical therapists not only provide treatment to reduce physical disability, movement dysfunction, and pain, but also services which prevent these conditions. (See Chapter 2 for a more detailed description of the activities of a physical therapist.)

PHYSICAL THERAPY AS A PROFESSION

The model definition provides a comprehensive description of the *practice* of physical therapy. A companion document addresses the *profession* of physical therapy. This was adopted by the **House of Delegates** (policy-making body) of the APTA in 1983 (Box 1-2).⁹

Box 1-2

Philosophical Statement on Physical Therapy*

Physical therapy is a health profession whose primary purpose is the promotion of optimal human health and function through the application of scientific principles to prevent, identify, assess, correct or alleviate acute or prolonged movement dysfunctions. Physical therapy encompasses areas of specialized competence and includes the development of new principles and applications to more effectively meet existing and emerging health needs. Other professional activities that serve the purpose of physical therapy are research, education, consultation and administration.

* From Philosophical Statement on Physical Therapy (Position), HOD 06-83-03-05, Alexandria, VA, 1983, American Physical Therapy Association.

Two significant features of this Statement which embellish the model definition are that physical therapy is a profession and that it promotes optimal health and function. The latter feature—promotion of optimal health and function—is a goal established with patient/client/family input. Optimal function may meet or exceed the level prior to injury/disease or may be severely diminished as a result of impairment. The former feature of this statement—that physical therapy is a profession—warrants further discussion.

It is generally agreed that a **profession** demonstrates three characteristics: knowledge in a specific area, social value and recognized autonomy.¹¹ Figure 1-1 indicates that these characteristics are the most valued features of a profession.⁸ It also demonstrates that a hierarchy exists with two additional traits possessing lower values. In any case, they are all important to consider.

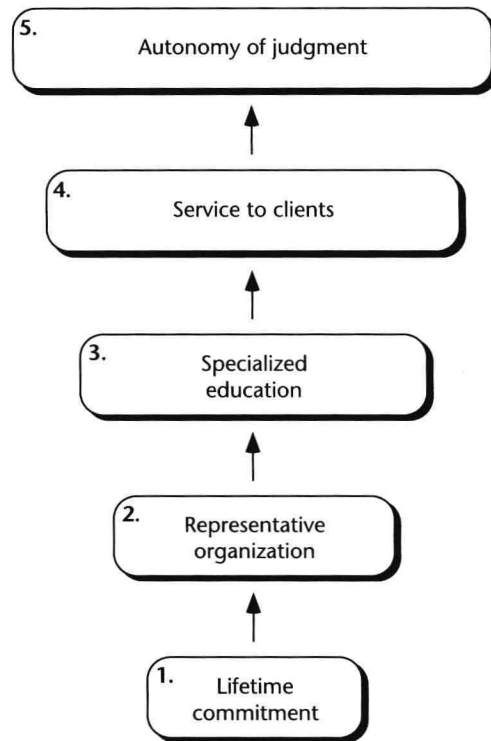


Fig. 1-1. Hierarchy of the criteria of a profession.

The first characteristic, a lifetime commitment, may seem formidable, requiring an individual's dedication to the profession. The second, a representative organization, provides standards, regulations, structure, and a vehicle for communication. In physical therapy, this is conducted by the APTA. Specialized education ensures competency to practice. For example, all licensed physical therapists must have a minimum of a four-year baccalaureate degree, and all physical therapist assistants must have an associate degree. The fourth characteristic, service to clients, is obvious in physical therapy. This provides a direct benefit to society. Finally, the last feature, autonomy of judgment, applies regardless of whether or not the therapist practices in a jurisdiction where a physician's referral is required by law. Independent and accurate judgment is inherent in every evaluation, goal, treatment plan, and discharge plan conducted by the physical therapist. This last criterion is frequently used to distinguish a professional from a technician (an individual who requires supervision).

As a profession, physical therapy emulates the criteria listed in Figure 1-1. This was not always true; therefore, the evolution of this profession included significant change and varying degrees of recognition from other professions. The next section provides a brief overview of the history of physical therapy.

HISTORICAL DEVELOPMENT

Examining the origin and development of the profession and practice of physical therapy in the United States will serve to explain some of the current characteristics and conditions. It will also demonstrate how certain positions changed over time. The reader is referred to resources at the end of this chapter for more detailed historical accounts.

Origins of Physical Therapy

Granger described how physical measures were used in ancient civilizations to relieve pain and improve functions.⁴ Massage was used by the Chinese in 3000 B.C., described by Hippocrates in 460 B.C., modified by the Romans, and accepted as a scientific procedure in the early 1800s. Techniques of muscle re-education developed from this evolution. Hydrotherapy was practiced by the Greeks and Romans through the use of baths and river worship. Finally, electrotherapy developed with the introduction of electricity and electrical appliances beginning in the 1600s.

More modern techniques of physical therapy were practiced extensively in Europe before they were employed in the United States. This was particularly true in England and France. It took the outbreak of polio epidemics and World War I to bring these techniques to the United States.

Impact of World War I and Polio

It is unfortunate that the response to widespread suffering was the impetus to develop physical therapy in this country; at the same time, this demonstrates the direct humanitarian motivation which serves as its foundation. First came the epidemics of polio (poliomyelitis or infantile paralysis) in 1894, 1914, and 1916, leaving tens of thousands of children paralyzed and in need of “physical therapy.” Then, at the outbreak of World War I, the Surgeon General of the United States sent a group of physicians to England and France to learn about physical therapy techniques so that those wounded in war could be better managed. As a result, the **Division of Special Hospitals and Physical Reconstruction** was created in 1917.² This Division was responsible for training and managing **Reconstruction Aides** (exclusively women) who would provide physical reconstruction to the persons injured in war. These women were the forerunners of the profession and practice of physical therapy in the United States (Fig. 1-2).

During this period, polio epidemics were occurring in Vermont. A statewide program, known as the “Vermont Plan,” was developed to study the cause and effects of the disease. This included health care teams that conducted field visits to provide care for the children with polio.³ These teams consisted of orthopaedic surgeons, public health nurses, **physiotherapists** (commonly known as “physicians’ assistants”), bracing makers, and stenographers. Physiotherapists became involved in determining accurate measurements for muscle strength and providing therapy through exercise and massage (Figs. 1-3 and 1-4).



Fig. 1-2. Reconstruction Aides treat soldiers wounded in World War I at Fort Sam Houston, Texas, in 1919. (Reprinted from *Historical Photograph Packet* with permission from the American Physical Therapy Association).



Fig. 1-3. Physical therapists and physicians work together to evaluate and treat children at a poliomyelitis clinic in New England in 1916. (Reprinted from *Historical Photograph Packet* with permission from the American Physical Therapy Association).

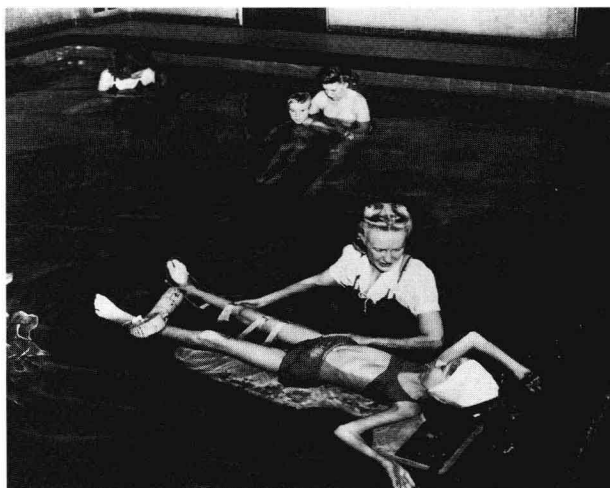


Fig. 1-4. Aquatic therapy was very effective for individuals who had polio. (Reprinted from *Historical Photograph Packet* with permission from the American Physical Therapy Association.)

Post World War I

Even when the war ended, the need for physical therapy continued. Attention shifted from preserving a fighting force to maintaining a working force. Humanitarian interests and the labor requirements of an industrial society resulted in a focus on “crippled children”.¹⁰ As the Reconstruction Aides moved into civilian facilities to address these needs, their titles and practices were plagued by confusion and ambiguity. The time had come to establish a clear identity through a national organization.

The origin of the first national organization representing “*physical therapeutics*” is traced to a meeting which was suggested by a military physician. This meeting materialized on January 15, 1921, at Keen’s Chop House in New York City and was attended by 30 Reconstruction Aides and five physicians. The business included creating a national organization, the **American Women’s Physical Therapeutic Association** and electing the first president, Mary McMillan.¹ The organization’s first constitution indicated that it was established to maintain high standards and provide a mechanism to share information (Box 1-3).