

# INTRODUCTION TO THE MOVEMENT SYSTEM AS THE FOUNDATION FOR PHYSICAL THERAPIST PRACTICE EDUCATION AND RESEARCH

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## ABSTRACT

In 2013, the American Physical Therapy Association (APTA) adopted an inspiring new vision, “Transforming society by optimizing movement to improve the human experience.” This new vision for our profession calls us to action as physical therapists to transform society by using our skills, knowledge, and expertise related to the movement system in order to optimize movement, promote health and wellness, mitigate the progression of impairments, and prevent the development of (additional) disability. The guiding principle of the new vision is “identity,” which can be summarized as “The physical therapy profession will define and promote the movement system as the foundation for optimizing movement to improve the health of society.” Recognition and validation of the movement system is essential to understand the structure, function, and potential of the human body. As currently defined, the “movement system” represents the collection of systems (cardiovascular, pulmonary, endocrine, integumentary, nervous, and musculoskeletal) that interact to move the body or its component parts. By better characterizing physical therapists as movement system experts, we seek to solidify our professional identity within the medical community and society. The physical therapist will be responsible for evaluating and managing an individual's movement system across the lifespan to promote optimal development; diagnose impairments, activity limitations, and participation restrictions; and provide interventions targeted at preventing or ameliorating activity limitations and participation restrictions.

**Level of Evidence:** 5

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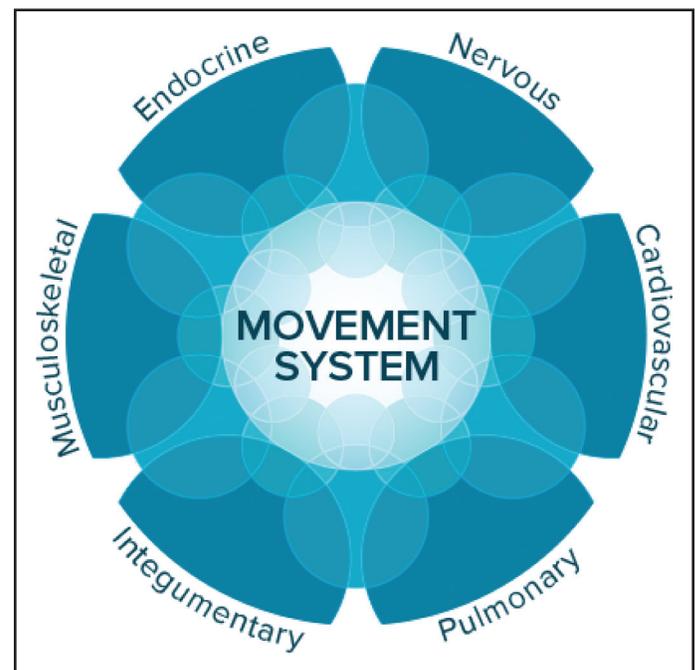
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## BACKGROUND AND INTRODUCTION

The physical therapy profession is often characterized or defined by the treatments we perform. For example, the current Merriam Webster definition of physical therapy is “therapy for the preservation, enhancement, or restoration of movement and physical function impaired or threatened by disease, injury, or disability that utilizes therapeutic exercise, physical modalities (such as massage and electrotherapy), assistive devices, and patient education and training – called also *physiotherapy*.”<sup>1</sup> The problem with this characterization of our profession is that it places us in the role of technicians who are defined by what we do rather than by our distinct body of knowledge. Such popular mainstream definitions ignore our assessment and clinical reasoning skills that have been refined in order to accurately diagnose and manage our patients. Furthermore, definitions such as this have the potential to mislead the public and other health professionals to underestimate our training, knowledge, and capabilities.

In the new vision statement and associated guiding principles for the profession adopted by the American Physical Therapy Association (APTA) in 2013, there was a conscious effort to promote a more accurate “identity” for the profession. APTA’s vision for the profession is “Transforming society by optimizing movement to improve the human experience.”<sup>2</sup> The first associated principle to accompany this vision was the *identity principle* which states the following: “The physical therapy profession will define and promote the movement system as the foundation for optimizing movement to improve the health of society. Recognition and validation of the movement system is essential to understanding the structure, function, and potential of the human body. The physical therapist will be responsible for evaluating and managing an individual’s movement system across the lifespan to promote optimal development; diagnose impairments, activity limitations, and participation restrictions; and provide interventions targeted at preventing or ameliorating activity limitations and participation restrictions. The movement system is the core of physical therapist practice, education, and research.”<sup>2</sup>

The concept of the movement system was not new when this vision and identity principle were adopted in 2013. Many clinicians were already using a movement-based approach to the assessment of dysfunction, but the APTA had not promoted the movement system as the foundation or conceptual framework of our practice. At its core, the education of the physical therapist encompasses the study of normal and disordered movement at the molecular, organ, and system levels. We are able to integrate information across multiple existing systems that can influence a patient’s movement and function. It is the integration of this information that the movement system represents and that is reflected in the APTA’s definition of the movement system; “The movement system represents the collection of systems (cardiovascular, pulmonary, endocrine, integumentary, nervous, and musculoskeletal) that interact to move the body or its component parts.” Figure 1 has been adopted as the APTA’s official diagram of the movement system. Unlike other professions that are associated with a single physiological or anatomical system of the body (i.e. urologist), the physical therapist uses their integrative knowledge to maximize physical performance and function and we are the only health care professional trained to systematically evaluate



**Figure 1.** *The Movement System, graphic used with permission of the APTA.*

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movement at the whole-body level. Therefore, since the term movement system was meant to become a widely-used term not owned by a single discipline, the APTA also adopted a companion definition that was meant to define the physical therapist's unique role with the movement system.

## **PHYSICAL THERAPIST PRACTICE AND THE MOVEMENT SYSTEM**

*Human movement is a complex behavior within a specific context.*<sup>2</sup>

- Physical therapists provide a unique perspective on purposeful, precise and efficient movement across the lifespan based upon the synthesis of their distinctive knowledge of the movement system and expertise in mobility and locomotion.
- Physical therapists examine and evaluate the movement system (including diagnosis and prognosis) to provide a customized and integrated plan of care to achieve the individual's goal directed outcomes.
- Physical therapists maximize an individual's ability to engage with and respond to their environment using movement related interventions to optimize functional capacity and performance.

It is important to emphasize that the adoption of the movement system as the foundation of physical therapist practice, education and research was intended to have many more positive benefits for the profession than simply elevating the public's perception of our role. While the APTA readily acknowledged that many therapists are already practicing as movement system experts who assess movement to identify the root cause of the dysfunction, accurately diagnose the problem, and provide interventions that effectively address the movement disorder and functional limitation, it is widely accepted that there are significant unwarranted variations in the practice of physical therapy that lead to inconsistent quality of the care provided. There are a significant number of therapists whose assessments focus on special tests and impairments rather than movement and function and whose interventions are targeted at treating the symptoms without addressing the root cause of the problem.<sup>3</sup> Specifically, a patient may report to

the clinic with patellofemoral pain, and the assessment and treatment is directed toward the knee, when in reality the under-lying problem could well be at the hip.<sup>4</sup> Likewise, a patient may report with low back pain as a primary complaint, when the root cause could be a mobility restriction within the hips.<sup>5</sup> Additionally, both the way students are trained (cardiopulmonary is often a separate and distinct unit separated from musculoskeletal etc.) and the growth of specialization within the profession may have also contributed to the unintended consequence of training therapists to move away from the whole body/cross systems perspective towards a focus on one particular system. For example, if a neuromuscular physical therapist focuses exclusively on neurological impairments, they may miss critical dysfunction in the musculoskeletal or cardiopulmonary systems that may be significantly contributing to movement dysfunction. An example of this could be seen in a patient with a high risk of falling. Emphasis could be centered upon postural training to control the patient's center of mass. But if the patient also had a musculoskeletal mobility problem with the spine, reaching overhead would always displace the center of mass in a posterior direction. Putting the emphasis on movement analysis during assessments, targeting interventions at the appropriate movement dysfunction and focusing on the integration of all the systems that interact to produce movement is intended to enhance the consistency of practice and elevate the quality of care provided by all therapists.

Another intended outcome of adopting the movement system is to transition the profession away from a focus on the use of medical diagnoses towards the development and classification of movement system related diagnoses. Most therapists would agree that a medical diagnosis does not guide physical therapy interventions. The APTA has adopted criteria for the development of movement system diagnoses and will be supporting the scientific validation and promotion of these.<sup>2</sup>

To fully promote the movement system, it is anticipated that the professional entry-level curriculum will need to adapt to this new emphasis. At the very least, it is anticipated that there will be an introduction to the term and definition of the movement system in an introductory course combined with

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an increased emphasis on movement analysis as an integral part of the assessment process as well as the integration of complex multi-system problems across the curriculum. The intent is not to be prescriptive but to share curricular models and best practices across all entry-level programs and to promote a dialogue within the physical therapy education community.

In summary, adopting the movement system as the core of physical therapist practice, education and research is intended to; 1) elevate the public's perception of our profession by associating us with our distinct body of knowledge and not just the techniques we use, 2) reduce unwarranted variation in practice and enhance the quality of care, 3) promote new diagnostic labels that will be meaningful to our profession and guide our treatment and 4) to unify educational programs around a common core. The APTA has absolutely no intention of adopting, endorsing or supporting any single therapeutic approach or diagnostic classification system related to the movement system. Scientific discovery related to, and the progression of this concept with input

from all stakeholders is welcome and we hope this special edition will help disseminate the concept and engage many more physical therapists from around the world in this vision for the profession.

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