

# What's in a Name? Using Movement System Diagnoses Versus Pathoanatomic Diagnoses

PAULA M. LUDEWIG, PT, PhD  
Associate Editor

REBEKAH L. LAWRENCE, PT, DPT, OCS<sup>1</sup>

JONATHAN P. BRAMAN, MD<sup>2</sup>

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In this issue of *JOSPT*, the Orthopaedic Section of the American Physical Therapy Association introduces the first of its shoulder clinical practice guidelines (CPGs), titled “Shoulder Pain and Mobility Deficits: Adhesive Capsulitis.”<sup>8</sup> We congratulate the authors on a thorough, well-written document that summarizes the current state of evidence on this topic.

The figure included in this month's CPGs also provides diagnostic labels for 2 future shoulder-related CPGs: shoulder stability and movement coordination impairments (dislocation of shoulder joint, or sprain and strain of shoulder joint); and shoulder pain and muscle power deficits (rotator cuff syndrome). These latest guidelines add to those previously published in the *Journal*, which include among others “Knee Pain and Mobility Impairments: Meniscal and Articular Cartilage Lesions”<sup>9</sup> and “Achilles Pain, Stiffness, and Muscle Power Deficits: Achilles Tendinitis.”<sup>4</sup>

The first step in the potential use of CPGs requires that the clinician deter-

mine if the patient matches the group represented by the guidelines. This first step involves a diagnostic process by which we name, or label, the condition we intend to treat. Diagnostic labels are intended to direct treatment and guide best practice, inform prognosis, and provide homogeneous patient groups with which to test effectiveness and efficacy of interventions. Diagnostic labels also facilitate communication between practitioners and influence reimbursement. Physical therapists are obligated to provide diagnoses for their patients,<sup>1,2</sup> and the *Guide to Physical Therapist Practice*<sup>2</sup> further defines “practice patterns” as diagnostic groups. Even so, these prac-

tice patterns may not provide adequate specificity to direct treatment and have not been uniformly adopted by clinicians as diagnostic labels.

The collection of Orthopaedic Section CPGs noted above uses long diagnostic labels to identify the underlying clinical conditions. Many physical therapists advocate for the diagnostic labels to be shortened to common, concise terms, such as *adhesive capsulitis*, *shoulder instability*, *rotator cuff disease*, *impingement syndrome*, *knee meniscal tear*, or *Achilles tendinitis*. These shorter diagnostic labels are commonly used by physicians and often referred to as medical diagnoses. Such medical diagnoses predominantly identify a specific tissue pathology presumed to be the cause of a patient's pain and dysfunction. This tissue pathology-based diagnostic labeling follows a pathoanatomic model of disease, in which the diagnostic process focuses on identification of the anatomical

<sup>1</sup>Program in Physical Therapy and Program in Rehabilitation Science, The University of Minnesota, Minneapolis, MN. <sup>2</sup>Department of Orthopaedic Surgery, The University of Minnesota, Minneapolis, MN.

pain-generating structure. Many physical therapists are taught to direct their orthopaedic evaluation toward classifying patients based on a pathoanatomic model, such as “signs and symptoms consistent with rotator cuff tear” or “labral tear.” A primary argument for this approach is that, in using the same labels as referring physicians, we theoretically enhance communication.

However, with increasing frequency, physical therapists evaluate and treat patients through direct access or without a specific diagnostic label from a referring physician (eg, shoulder pain). More importantly, physical therapists treat movement-related impairments rather than structural anatomical abnormalities. As such, using a pathoanatomic model to define physical therapy-related diagnostic labels creates a disconnect between our diagnostic and treatment processes. The diagnostic labels in the CPGs identified above are based on movement impairment language defined in the International Classification of Functioning, Disability and Health (ICF) framework.<sup>6</sup> By changing the focus of the label to the human movement system, the diagnosis changes to a pathokinesiologic model, where the diagnostic process focuses on identification of characteristic movement impairments.<sup>14</sup> We support this change in diagnostic labeling for a number of reasons. Foremost, pathoanatomic diagnoses, when not directly confirmed as the true cause of the pain and dysfunction, may misdirect our treatment interventions rather than guide them. We further advocate that diagnostic labels may better relate to the physical therapy treatment goal of improving patient function if based in the movement system rather than on pathoanatomic structures.

There are numerous limitations to a pathoanatomic model as the primary means to diagnostically categorize patients. First, using pathoanatomic diagnoses may not adequately direct physical therapy interventions. Second, pathoanatomic diagnoses may not correctly describe the true underlying pathology

(eg, adhesive capsulitis) or account for multiple coexisting pathologies (eg, bursitis, rotator cuff disease, labral pathology). Third, pathoanatomic labels are often used inconsistently among health-care practitioners (eg, shoulder impingement), thereby complicating effective communication and the execution of the plan of care. Fourth, the scope of physical therapy practice does not currently include all the tools necessary to accurately assign these diagnostic labels (eg, imaging, diagnostic arthroscopy) or treat the specific tissue pathology (eg, surgery). Finally, pathoanatomic diagnoses are often predominantly based on the use of “special tests,” which generally have poor sensitivity and specificity and, consequently, poor diagnostic accuracy.

The CPG titled “Shoulder Pain and Mobility Deficits: Adhesive Capsulitis” published in this issue of *JOSPT* states that “a medical diagnosis of adhesive capsulitis ... does not aid in treatment decision making for rehabilitation.”<sup>8</sup> The guideline subsequently advocates for the identification of patterns or clusters of impairments and tissue irritability to further guide rehabilitation. The most characteristic movement impairment for this condition is a “global loss of both active and passive shoulder range of motion.”<sup>8</sup> Thus, the diagnostic label of “shoulder pain and mobility deficits” is based on this characteristic movement impairment rather than on presumed tissue pathology. Providing a diagnostic label based on the patterns or clusters of movement impairments that physical therapists treat provides labels with greater potential to direct our interventions. In cases when the tissue pathology is specifically known rather than presumed, diagnostic labels can combine relevant movement system and pathoanatomic terms. For example, shoulder mobility deficit associated with capsular contracture is a useful diagnosis because it differentiates from what may be a similar clinical presentation in the case of glenohumeral osteoarthritis. Potential subclassification of movement system diagnostic labels toward directions

of movement impairments (eg, relative amount of external versus internal rotation range-of-motion deficit) guides subsequent physical therapy intervention better than historical subclassification of pathoanatomic labels, such as labeling adhesive capsulitis as being primary or secondary.

Identifying a diagnostic label within the human movement system is consistent with the diagnostic approach advocated by the Diagnosis Dialog group.<sup>12</sup> This group of physical therapy academicians, clinicians, and researchers advocates to “(1) use standardized anatomical, physiological, or functional terms that concisely describe the condition or syndrome of the human movement system, (2) use standardized movement-related terms that already exist, (3) include, if deemed necessary for clarity, the name of the pathology, disease, or disorder that is associated with the diagnosis, and (4) be as short as possible to improve clinical usefulness.”<sup>11</sup>

Movement system diagnostic labels have several advantages. First, they “reorder” the label to put the movement system first, staying consistent with physical therapists’ professional identity, training, and licensure as experts in the human movement system. This further prioritizes movement evaluation in the diagnostic process, thereby reducing the emphasis on special tests. Second, movement system diagnostic labels use accepted biomechanics/kinesiology terminology and do not “lose” any information on pathology or hinder communication with physicians. Third, this movement system approach provides diagnostic labels within physical therapists’ professional scope and within the “tools” currently used in the diagnostic process. As such, movement system diagnoses can be appropriately used when patients are seen in a direct-access setting or when physician referrals are nonspecific (eg, “shoulder pain”). Finally, movement system diagnostic labels allow for integration of ICF language, which increases focus on patient function.

Even after considering all of these issues, there may be reluctance to abandon a concise and traditional diagnostic label such as adhesive capsulitis. A contrasting view would argue that both physicians and physical therapists have a clear picture of this condition and how these patients present. As previously noted, however, a limitation of the pathoanatomic model is simply identifying the pathology. For instance, the CPG in this issue of *JOSPT* identifies that a number of the presumptions about the condition and label “adhesive capsulitis” are not well supported with evidence. Indeed, the diagnostic recommendations are provided at the level of expert opinion, and the strongest grade of evidence for intervention effectiveness is provided for corticosteroid injections. The CPG notes, “The following studies implicate that the initial barrier to joint motion is pain and muscle guarding, as opposed to fibrosis or adhesions, because the results of all studies demonstrate significant improvements in motion immediately following steroid injections.”<sup>78</sup> The premise that capsular adhesions may not be the primary restriction in many patients diagnosed with adhesive capsulitis is further supported by dramatic increases to near-normal range of motion in patients after suprascapular nerve block.<sup>7</sup> If the diagnostic label implicates the capsule, and if this is not directly confirmed as the true cause of the dysfunction and movement impairment, we may misdirect our treatment interventions rather than guide them. Misdirected treatment interventions resulting from pathoanatomic diagnostic labeling are also demonstrated with clinical outcomes being unrelated to the presence or absence of disc herniation<sup>5</sup> and the increasing frequency of anterior acromioplasty for shoulder “impingement,”<sup>16</sup> despite no increased effectiveness of surgery over conservative care.<sup>13</sup>

Physical therapists are often reluctant to change from common pathoanatomic labels even if they are inaccurate, because they understandably believe that

it is necessary for physical therapists and physicians to “speak the same language.” Interestingly, among orthopaedic surgeon shoulder specialists, there is growing advocacy for abandoning the most commonly used shoulder diagnostic label, “shoulder impingement,” and replacing this label with other terms.<sup>13,15</sup> Neer’s<sup>10</sup> original diagnosis was intended to direct a specific treatment of anterior acromioplasty based on a presumed pathoanatomic acromial morphology. Physical therapists, when using the same label, however, may do so with different meaning, presuming movement-related mechanisms such as superior humeral-head translation or lack of adequate scapular motion to clear the acromion during arm elevation.<sup>3</sup> Using the same terms with different meaning further confounds communication among professionals.

There are an extensive number of pathoanatomic diagnostic labels in the broad category of “shoulder impingement” that are used by different practitioners for the same patient presentation. These include subacromial or internal impingement, bursitis, partial rotator cuff tear, isolated full-thickness rotator cuff tear, rotator cuff tendinopathy, or long head of biceps tendinopathy. Many of these patients may also have comorbid glenoid labral tears, underlying glenohumeral instability, or acromioclavicular osteoarthritis. Often, the specific anatomic lesion causing the pain is unknown, and Neer’s<sup>10</sup> proposed mechanism of impingement and the associated clinical diagnostic tests are not well supported in the literature.<sup>3</sup> As such, the diagnostic label of “shoulder impingement” has become too broad and inconsistently used to effectively direct treatment, for both surgeons and physical therapists. Furthermore, because the rotator cuff is not always the source of the pain and dysfunction, a label of rotator cuff disease is also inadequate.

Based on the figure included in the “Shoulder Pain and Mobility Deficits: Adhesive Capsulitis” guidelines, an upcoming CPG will use the label “shoulder

pain and muscle power deficits: rotator cuff syndrome” for the broad category of patients with “impingement.” It is unlikely that a single therapeutic approach can most effectively be used to treat all of the likely diverse patients with such a diagnostic label. More likely, there are subgroups within this broad category, such that if we could reliably and validly distinguish them in a diagnostic process, we could improve treatment outcomes. These subgroups may better relate to the critically important issue of patient function if they are based on movement impairments or movement-pain relationships rather than as pathoanatomic subgroups.

It is apparent from the change in labels in the Orthopaedic Section CPGs, as well as from reports among shoulder surgeons,<sup>13,15</sup> that there is a need for interdisciplinary discussions on redefining diagnostic labels. Though the labels in this issue’s CPGs may appear long and cumbersome, they are consistent with movement system labels as well as with ICF language. Further refinement and subclassification of diagnostic labels will occur as we determine the appropriate levels of both conciseness and specificity to direct practice. Therapists, surgeons, clinicians, and researchers need to work together to make this nomenclature consistent and useful across providers of musculoskeletal care. This change provides an initial framework to initiate research studies regarding classification of shoulder pain, and begins to disentangle us from presumed pathoanatomic conditions that often do not relate to function. We look forward to further dialog to enhance the diagnostic process and, subsequently, the care we provide for our patients. ●

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