by Reed Humphrey, Ph.D., P.T., FACSM

Differentiating Leg Pain in Exercise

If one could clinically measure resignation, mine would register at high levels each time I see the television commercial wherein an almost pathologically cheerful couple leaps out of their van to question the overweight truck driver victimized by a burning sensation in his chest. While the implication is that he is familiar with this recurring discomfort, it can only be one thing. And it isn't angina. No, it's always acid reflux, and the remedy is always a particular medicine—and it isn't a nitrate. I can't help but think of the possibility that somewhere in the United States, perhaps while you are reading this, because of a case of real angina combined with a healthy dose of denial and one part acid-blocker, a coronary care unit has admitted another latecomer where minutes count(ed).

Health/fitness providers likely would be alert to similar symptomatic complaints but would reverse the order to rule out angina before considering alternate causes. We understand this process to be a form of differential diagnosis. Taber's Cyclopedic Medical Dictionary defines differential diagnosis as "Diagnosis based on comparison of symptoms of two or more similar diseases to determine which the patient is suffering from" (1). In contemporary health-care delivery, differential diagnosis is a recognized process for many health-care providers, and in the exercise environment, permutations of differential diagnosis are routinely practiced. Exercise personnel evaluate and interview clients to better analyze exercise-induced complaints, with the dual expectation that such analysis can help remedy musculoskeletal issues as well as recognize signs and symptoms that might be associated with a more serious underlying pathology. As always, levels of academic training and credentials vary among staff, and it is important that the practice of symptom differentiation remain in the context of one's training, scope of practice, and credentials.

Of physical complaints that arise in the health fitness setting, leg pain often presents as one that is, at best, vague. Although the least problematic source is simply exercise-induced musculoskeletal deconditioning, it is possible that the source represents an underlying pathology, most likely peripheral arterial disease (PAD), a form of peripheral vascular disease. Given the incidence and prevalence of PAD in the adult population, exercise-induced leg pain that is suspect may well be a clinical manifestation of this pathology. Most recent estimates of PAD in the U.S. population suggest 12 million cases, with many more undiagnosed because of absent or vague symptoms (2). Individuals with PAD are likely to experience intermittent claudication (IC), exercise-induced symptoms most often described as cramping pain and, to a lesser degree, an ache or sense of fatigue (3). Obviously this symptom description is not clearly distinguishable from symptoms that might be encountered by a novel exerciser. An important distinguishing characteristic between the symptoms of IC and the fatigue of deconditioning is the quick resolution of IC symptoms with cessation of exercise. Importantly, exercise training is the most effective treatment of peripheral arterial disease when considering medical therapy for IC that involves risk-factor modification, exercise training, and pharmacologic therapy (4). A variety of mechanisms by which exercise improves symptoms and functional status in patients with symptoms of IC includes improvements in oxygen extraction and metabolism, collateral blood flow, vascular endothelial function, walking economy, and inflammatory changes (5).

Exercise personnel also should recognize that suspicious leg pain is not exclusively the sign or symptom of IC, despite the prevalence of PAD. Other clinically relevant conditions could include spinal stenosis, chronic compartmental syndrome, or venous insufficiency. The differential responses provoked by these conditions are summarized in the Table (3). Whereas chronic venous insufficiency may be more visibly apparent, the clinical differentiation of similar signs and symptoms of alternate pathologies could be overlooked. Each is important in its

Table. Comparison of Intermittent Claudication to Other Conditions with Lower Extremity Pain

	Intermittent Claudication	Spinal Stenosis	Chronic Compartmental Syndrome	Venous Insufficiency
Location of pain or discomfort	Calf muscle	Hip, thigh, buttocks (follows dermatome)	Calf muscles	Entire leg but usually worse in thigh and groin
Characteristic of discomfort	Cramping pain	Weakness, pain	Tight, bursting pain	Heavy feeling
Onset relative to exercise	After same degree of exercise	After walking or standing for some length of time	After sustained exercise (*e.g.*, jogging)	After walking
Effect of rest	Quickly relieved	Relieved by stopping only if position is changed	Subsides slowly	Subsides slowly
Effect of body position	None	Relief by lumbar spinal flexion	Relief speeded by elevation	Relief speeded by elevation
Other characteristics	Reproducible	Frequent history of back problems provoked by intraabdominal pressure	Typically muscular athletes	History of iliofemoral deep vein thrombosis, edema, signs of serious congestion

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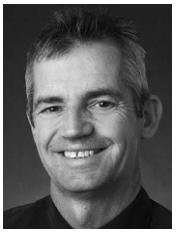
own right and, as such, exercise personnel should have some understanding of the differences in clinical presentation.

When the signs or symptoms of leg pain are suggestive of pathology rather than exercise-induced fatigue associated with deconditioning, it is important for exercise personnel to act responsibly and within their scope of training and license to practice. While discussing the possibility that the signs and symptoms may be associated with something other than expected fatigue, any suggestion that could be construed as a medical diagnosis should clearly be avoided. It is important to make an appropriate referral to the physician or the client's health-care provider, including good documentation that includes a crisp description of the signs and symptoms. Likewise, exercise program directors should discuss the importance of appropriate communication with staff in the context of continuing education regarding exercise-induced signs and symptoms among clients. In that regard, client care is enhanced and the relationship between health-care and health/fitness providers is optimized.



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