

Symptom Versus Dysfunction

Everyone knows replacing worn tires on a misaligned car does not correct the alignment problem. New tread buys some time, but the tires still will require premature replacement.

The car's "symptoms" are addressed by replacing the tires, but its "dysfunctions" are not resolved until the alignment problem is fixed. The same rule applies to the human body.

Let's begin by defining symptom and dysfunction. A symptom indicates a problem, which may present as altered function, sensation or appearance. Dysfunction is defined as any malfunctioning part. Thus, malfunctioning parts lead to altered function, sensation or appearance. Adding complexity to the situation, symptoms may not appear until several layers of dysfunctions have formed. What does this mean for us? We must not stop at symptoms when determining our diagnosis and treatment plan.

What better way to dive deeper into these thoughts than with a baseball analogy? The pitcher is our doctor. No one would argue that if they focus solely on the batter and ignore the other players, they're missing half the game. The pitcher's eyes must always be open, observing the rest of the field carefully before deciding what to do next. Our patient's symptoms are on the plate right in front of our eyes, but their dysfunctions are more obscured in the field. We must look beyond the symptoms to form a complete and accurate diagnosis.

The following is a case study of a 24-year-old, first-time marathoner presenting with medial leg pain of three months duration. He had completed seven weeks of physical therapy after a diagnosis of "shin splints." During that time, the medial leg received electric stimulation, ultrasound, ice massage and calf stretching. The patient's pain improved with rest, but as he attempted to run again, the pain returned unchanged. This illustrates a classic example of addressing symptoms while missing dysfunctions. The pain was located in the leg, while the dysfunctions were higher up the biomechanical chain.

A thorough functional exam extending beyond the symptomatic site revealed the following: Prone hip extension was decreased by 50 percent on the symptomatic side. Palpation revealed adhesions in the psoas, shortening the muscle and inhibiting the gluteus maximus. Inhibition weakness led to overload of the posterior chain, decreasing his body's running economy. The calf, instead of simply swinging the knee from a flexed position to an extended position, was recruited to help with propulsion. The tibialis posterior and flexor digitorum longus (working much harder than intended) elicited symptoms. Simply treating the painful structures was inadequate to fix the problem.

When forming a diagnosis, "Why?" is a question that should repeatedly pass through your mind. Why does the patient's medial leg hurt? What anatomy is present? Why are those structures overloaded? What is weak, tight or inhibited, and why?

Returning to the baseball analogy for a moment, the pitcher's job is complex and multifaceted, as is ours. If we only pay attention to our patients' symptoms, we are also missing half the game. Symptoms are the body's alert system that something is wrong, but do not directly illuminate the underlying problem. Symptoms mark the first few steps of the arduous path we call diagnosis. We

must travel further on our own to determine dysfunctions.

Before we begin traveling the diagnosis pathway, we have work to do. Similarly, any good pitcher's job begins long before game day. Their opponents have all been well-researched. The pitcher knows if the batter is a switch-hitter, how they handle knuckleballs or if they like to swing hard at the first pitch.

As doctors, we also must do our homework. Before stepping into the room with our patients, we need to know what could be wrong. This begins with a thorough understanding of anatomy. Can we look at a shoulder and mentally dissect, layer by layer, through skin, fascia, nerves, arteries, muscles, tendons, ligaments and cartilage? We need to know pathology. What can go wrong with tissue? Is there a tear, crush, adhesion, degeneration, joint dysfunction or nerve entrapment? We need to know how various pathologies present. Why is it painful first thing in the morning, after exercise or with keyboard use?

Carpal tunnel syndrome is a commonly misused diagnosis and a classic case of anatomy comprehension gone awry. Patients complaining of pain throughout their entire hand and forearm are too often diagnosed with carpal tunnel syndrome. Their treatment plans include bracing, wrist adjustments and surgery. True carpal tunnel syndrome is defined as compression or irritation of the median nerve in the carpal tunnel. Pull out *Netter's* or *Gray's* and note that the median nerve passing through the carpal tunnel only innervates the thumb and first two and a half fingers, not the remaining fingers, palm or forearm.

A carpal tunnel syndrome diagnosis for a patient with whole hand and forearm symptoms is inaccurate. More structures are involved than simply the median nerve at the carpal tunnel. The median, ulnar and radial nerves all innervate the hand, so a problem affecting all nerve distributions likely exists proximal to their branching points. Without a strong anatomy base, this important detail is missed and inappropriate treatment is applied.

Just as the pitcher must do their homework and pay close attention to the game, we must do the same. Without a solid intellectual foundation of anatomy and pathology, our basis for determining diagnosis is inadequate. Once our foundation is formed, symptom and dysfunction concepts are added to the structural framework. Only then can we start forming a complete and accurate diagnosis, guiding us to efficient and effective patient care.

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