



INTERPRETING WADDELL'S SIGNS

Clearing Up the Misuse and Abuse of Nonorganic Physical Signs in FCEs

Dr. Steve Allison

Functional capacity evaluations (FCEs) are commonly used in workers' compensation cases to determine the safe work tolerances and permanent work restrictions of injured workers. Professional guidelines for qualified FCE examiners have been published in the American Medical Association's "Guide to the Evaluation of Functional Ability (2009)" and in the orthopaedic section of the American Physical Therapy Association's "Occupational Health Physical Therapy: Evaluating Functional Capacity Guidelines (2011)." These guidelines form the gold standard with regard to the proper design, administration, and interpretation of FCEs.

Practice standards for FCEs require FCE examiners to evaluate injured workers' performance validity (good effort or poor effort) and their pain behavior (credible or symptom/disability exaggeration). Proper evaluation requires adequate time to conduct an oral intake interview, review evidence from relevant

medical records, perform a physical examination, safely administer functional tests, and interpret functional test results.

There are a large number of commercial FCE systems that purport to be able to objectively identify individuals who provide insincere or unreliable effort during FCEs and who also demonstrate nonorganic physical signs (often referred to as Waddell's signs) consistent with symptom exaggeration.

However, if you closely examine the methods used in many of these commercial FCE systems, you will eventually discover that many of these testing methods simply aren't valid for the way they have been used in the past and, unfortunately, continue to be utilized in current practice. This happens both intentionally and unintentionally for reasons that you can speculate.

Information on nonorganic physical signs in low back pain was first published in the *Spine Journal* in March 1980 by Gordon Waddell, et al. The authors proposed that the nonorganic signs were distinguishable from the standard clinical signs of physical pathology and correlated with other psychological



data. It was suggested that the nonorganic signs be used as a simple clinical screen to help identify patients who may require a more detailed psychological assessment.

Over the course of the next two decades following the publication of Waddell's original article, the use of Waddell's signs in workers' compensation and personal injury claims grew prolifically. Many FCE examiners and physicians had little or no background in the original development or proper interpretation of Waddell's signs. Medical providers learned about Waddell's signs in a very short, story format while attending continuing medical education courses or from other peers. Unfortunately, during this period in history, many of those individuals with legitimate injury claims were mislabeled as symptom exaggerators or malingerers based in large part on the inappropriate use and interpretation of Waddell's signs.

In 1998, the *Spine Journal* published an additional study by Waddell, et al., titled, "Behavioral Responses to Examination: A Reappraisal of the Interpretation of 'Nonorganic' Signs." In this study, the authors noted that the signs had been misinterpreted and misused both clinically and medicolegally. The authors further noted that behavioral signs on their own were not a test of credibility or faking, and that the signs offered only a psychological "yellow-flag" to those patients who may require both management of their physical pathologies and more careful management of the psychosocial and behavioral aspects of their illnesses.

In 2003, the *Pain Medicine Journal* published a study by David Fishbain, et al., titled, "A Structured Evidence-Based Review on the Meaning of Nonorganic Physical Signs: Waddell Signs." In this study, the authors reviewed 61 studies and case reports related to Waddell's signs. From this literature review, the authors reached the following conclusions:

1 Waddell's signs do not correlate with psychological distress.



2 Waddell's signs do not discriminate organic from nonorganic problems.

3 Waddell's signs may represent an organic phenomenon.

4 Waddell's signs are associated with poorer treatment outcomes.

5 Waddell's signs are associated with greater pain levels.

6 Waddell's signs are not associated with secondary gain.

7 There are some methodological problems with Waddell's signs studies as a group.

Fishbain, et al., authored an article in 2004 in the *Clinical Journal of Pain* titled, "Is There a Relationship Between Nonorganic Physical Findings (Waddell's Signs) and Secondary Gain/Malingering?" In this piece, the authors reviewed 16 studies relating to Waddell's signs and secondary gain or malingering. From this literature review, the authors found that a preponderance of evidence pointed to no association between Waddell's signs and secondary gain and/

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or malingering.

The *American Journal of Physical Medicine & Rehabilitation* in 2010 published a report by Don Ranney titled, "A Proposed Neuroanatomical Basis of Waddell's Nonorganic Signs." In the report, Ranney noted that the use of the term "nonorganic signs" suggested a nonphysical cause, such as psychological or sociological factors. Ranney also went on to provide a valid neuroanatomical basis to explain physical causes for six of the eight original nonorganic signs (the two signs not explained on a neuroanatomical basis were regional weakness and overreaction).

Ranney also pointed out that the brain is as organic and physical as a herniated disk. Therefore, he recommended calling Waddell's signs "behavioral responses to physical examination," instead of using the term "nonorganic signs."

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With all of the evidence presented above, we should ask the following questions:

- 1 Do nonorganic signs really exist?
- 2 Can Waddell's signs be present with serious low-back pathology?
- 3 Where do you receive formal training on how to administer and interpret Waddell's signs?
- 4 What does a positive Waddell's test really mean?
- 5 Does a negative Waddell's test really mean that a patient is not exaggerating or malingering?

It should be abundantly clear that Waddell's signs have been misused and abused for over 30 years. This ignorant practice continues to this day despite the level of evidence as reported across a number of studies that demonstrate its many problems. The presence of multiple Waddell's signs instead should lead FCE examiners and medical providers who use this screening method to a conclusion that the injured worker more likely than not has some degree of psychological issues contributing to their behavior that require a more detailed, formal psychological evaluation.

Based on the preponderance of evidence, it is my opinion that, as a whole, Waddell's signs provide limited value for use in FCEs. The same can be said for their use in any type of medical evaluation, including second medical opinions and independent medical examinations.

It is useful during a physical examination to document issues related to regional sensory changes (pain, numbness, or tingling in a widespread distribution) and/or regional weakness (weakness in a widespread distribution that is jerky, cog-wheeling, or catchy). You should also document inconsistencies in active versus passive range of motion findings and careful observations of movement patterns during formal testing versus movement patterns when the injured worker is not being tested. I don't refer to these findings as positive Waddell's signs, positive nonorganic signs, or faking,

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Instead, I refer to these inconsistent findings as psychophysical indicators of possible abnormal pain behavior.

It is preferable to perform FCE testing over two consecutive days for a number of reasons. Most importantly, it provides the FCE examiner with a more reliable assessment of injured workers' pain behavior and their tolerances to safely perform functional activities independently and effectively on a day-to-day basis.

Not only should pain behavior be reassessed the following day, but also a repeat physical examination should be done to document the presence or absence of muscle spasm, swelling, and joint warmth. The second day also allows the FCE examiner to expand functional testing to more effectively assess an injured worker's tolerance to safely perform repetitive physical activities over a longer duration of time.

Simply put, we are talking about the degree of confidence you obtain with repeated measures. For example, if you're target-shooting and you hit the bullseye dead center on the first shot and miss the bullseye by 12 inches on the second shot, confidence in your ability to hit the bullseye on subsequent shots may be suspect. However, if you hit the bullseye dead center 10 shots in a row, confidence in your ability to hit the bullseye on subsequent shots should be great. The same basic philosophy applies to repeated measures of pain behavior and work tolerances during an FCE as long as you're

using the proper testing methods.

Physiological monitoring (such as heart rate) during functional testing is particularly important not only for safety reasons, but also because it serves to provide the FCE examiner with an objective indicator about an injured workers' physical endurance, signs of a possible acute pain exacerbation, and effort level.

Proper evaluation of pain behavior and performance validity is complex and multifactorial. Qualified FCE examiners should rely on a combination of self-reports, clinical observations, and objective physical measures (biomechanical and physiological) to form valid and reliable evidence-based opinions about an injured worker's pain behavior and performance validity.

A word to the wise: an FCE examiner is not qualified to diagnose psychosomatic disorders, malingering, or depression (unless they are a licensed psychologist or psychiatrist). However, a properly trained and certified FCE examiner is qualified to screen for psychological conditions that more likely than not result in abnormal pain behavior and interfere with timely return to work. In addition to Waddell's signs, other "objective" tests used in FCEs, such as maximum voluntary-effort grip-strength testing (bell-shaped curve analysis), rapid-exchange grip-strength testing, isometric lift-strength testing (e.g., horizontal validity), distraction-based lift testing (e.g., lever arm), and the coefficient of variance are routinely misused and abused. Insurance claims professionals, nurse case managers, and attorneys should understand the limitations, proper use, and interpretation of Waddell's signs and other tests used in FCEs.

The bottom line should be obvious: not all FCEs are the same. Choose wisely and look for trained and qualified FCE examiners who practice with integrity, excellence, and commitment. ■

Dr. Steve Allison is CEO of Functional Capacity Experts LLC. Has been a CLM Fellow since 2015 and can be reached at sallisondpt@fcexpt.com.

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