



Diagnosis of Repetitive Use Injury

The traditional approach to diagnosis a repetitive use injury is to identify or name the tissue source of the pain. A common belief is that once the tissue that is causing the pain and dysfunction is identified this will provide direction as to what is the next step. Unfortunately, naming the source of the problem often is insufficient. For example, knowing the Achilles tendon is injured does not clarify what the intervention should be. Even if a intervention is chosen which facilitates healing the injured tissue whether it be rest, or an injection, the question that remains is how that particular tissue on that particular side of the body was subjected to excessive or abnormal levels of physical stress leading to injury of that particular tissue. Ideally the diagnostic process should include observing consistent patterns of movement that is associated with the individual's pain complaint. Once a consistent pattern of movement is identified the next step is to modify or correct the observed movement.

Interventions which address the tissue source or symptoms without addressing the cause will likely result in recurrence.

Diagnostic imaging techniques, such as, radiographs, MRI, CAT scans, and ultrasound may help identify the injured tissue. Often the diagnostic image has little influence on selection of treatment intervention for repetitive use injuries, and it not necessary.

It is nice to know what specific tissue is injured can help determine a prognosis of how long it will take to recover from the injury. It is known that some tissue heal quicker and more completely than other tissues. For example injured muscle will heal quicker than an injured tendon. However knowing which tissue is injured does not explain how the tissue became injured.

In addition to the standard physical examination, orthopedic tests, and diagnostic images which provide clues as to which tissue is injured, examination should include observing consistent patterns of movement that is associated with the individual's pain complaint. Once a consistent pattern of movement is identified the next step is to modify or correct the observed movement. This process of identifying consistent pattern of movement contributing to repetitive use injury is a relatively new and challenging area of health care. Rather than identify diagnosis by naming where it hurts and then identifying the movement dysfunction,

there is a growing body of literature in which the diagnosis or naming process is to first identify the consistent pattern of movement which results in injury to particular tissues or regions of the body.

If the repetitive use injury is related to running, the examination process needs to include observing running. If the repetitive use injury is related to sitting and driving the examination process needs to include observing driving posture. If the head and neck pain are worse on work days the examination process should include assessing alignment and movements at the computer work station. The confines of a healthcare professional's examination room often make it difficult to observe consistent pattern of movement. Figuratively and literally sometimes it is good to step outside of the box.

Ideally the diagnostic process will not only include identifying the offending movement dysfunction, but will include an attempt to modify the offending movement. This confirmatory process can result in a decrease in the pain, or alleviation of the pain, and this information provides specific direction in terms of intervention. For example if an Achilles tendon injury is related to excessive pronation, the examination should include an attempt to modify the pronation when walking or running by consciously modifying the manner in which the foot strikes the ground, or using adhesive strapping/tape, or some sort of temporary intervention. If the temporary intervention alleviates the symptom when performing the movement or decreases the degree of the symptom this provides confirmation of which intervention should be used.

An actively engaged health care consumer asks questions, and learns what to do to help facilitate healing. When it comes to repetitive use injury, asking for expensive diagnostic imaging techniques is not as important as asking for an explanation how that particular tissue on the particular side of the body was subjected to abnormal and excessive amounts of stress. Ask the question – why and how the injury occurred? Show me the consistent movement patterns that stress the injured tissue. Ask how should I move differently to avoid re-injury?

Take home points:

- Interventions which address the tissue source or symptoms without addressing the cause will likely result in recurrence
- The diagnostic process of repetitive use injuries it is *nice* to know the tissue source of the injury, but we *need* to know is how that particular tissue has been subjected to abnormal and/or excessive amounts of physical stress leading to the injury.

- The diagnostic process should include observing consistent patterns of movement that is associated with the individual's pain complaint.
- Once a consistent pattern of movement is identified the next step is to modify or correct the observed movement.