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Dem Bones – Look at Adjacent Joints to Solve Stuborn Injuries

Knowing the where it hurts is helpful, when it comes to allievatig injury, but not always. The phenomena of referred pain may play a role in the diagnosis and management of repetitive use injury. Referred pain is pain percieved at a site distant from the source of the pain. The typical example of referred pain is a heart attack. Individuals suffering a heart attack may describe crushing chest pain, but often the pain is percieved as left arm pain or left jaw pain. The source of the pain is the heart muscle, but the perception is that the arm or jaw hurts, this is "referred pain".

The phenomona of referred pain is true for orthopedic problems as well as viseral problems. A client came to me for help with a chief compliaint of knee pain. After gathering the history, performing a clinical exam it became apparent that passive movement of the hip joint was restricted and passive movement of the hip joint while not allowing movement of the knee joint provoked the symptom of knee pain. After requesting assistance of the primary care physician to order a radiograph it showed signficant degernative joint disease of the hip, and a normal knee joint. This is an example of "referred pain", the knee pain is precieved at a site distance from the source of the pain, the hip joint.

Referred pain tends to follow certain principals. The deeper the injured tissue the more likely the pain is percieved at a site distant from the source, as the heart is a very deep tissue, and the hip joint is also a deep structure they are often involved in "referred pain". If the injured tissue is close to the surface like a tendon at the elbow (tennis elbow) it is less likely for the pain to be precieved at a site distant from the actual injury. Pain is referred from the center of the body outward, not from the periphery towards the center of the body. Referred pain from musculoskeletal tissues does not cross the mid-line of the body.

A similar but less recognized phenomenon is that the mechanical impairment causing the pain may be distant from the joint or area where pain is percieved. For example a common belief is that abnormal foot alignment and movement such as excessive pronation can lead to knee pain.

A recent published case report (Vaughin, DW 2009) described a 25 year old female runner who just prior to competing in her first Boston Marathon developed knee pain. The physical therapist performed all of the clinical examination procedures about the knee, but was unable to do provoke the symptoms or identify any impairment at the knee joint. Palpating all around the knee failed to elicit tenderness or symptoms. Continuing the clinical exam to look at adjacent joints of hip and pelvis provactive tests of the hip and pelvis demonstrated signficant asymmetrical limitations. The patient was treated with techniques to restore symmetry of alignment and movement of the pelvis and hip. After one treatment this patient was able to return to running without symptoms and she achieved her goal of completing the Boston Marathon.

Two different clients sought my assistance regarding shin splints. Palpation of the shin elicited the chief complaint shin pain in both patients. The shin pain was a local problem, not a referred pain problem. However examination of the foot and ankle failed to demonstrate abnormal foot alignment or any signs of excessive pronation in both patients. One patient did demonstrate impairment of the hip on the affected side; the gluteal muscles were relatively long and weak. When she ran the affected leg would frequently cross the mid-line of the body when the foot struck the ground. After pointing out to her the form fault of crossing the mid-line with the affected foot, she was instructed to conciously correct this fault and not allow the foot strike to cross the mid-line of the body. When she ran in this manner she was able to run without shin pain. This was followed up with remedial strengthening exercies to improve the muscular endurance of the gluteal muscles. The second patient partcipated in slow motion video analysis running and the symptomatic leg rotated inwardly to a much greater degree in comparision to the non injured leg. She was instructed to conciously correct this fault and to laterally rotate the affected leg when walking and running and she was able to allievate the shin pain. Again this was followed with remedial strenthening exerices for the muscles responsible for lateral rotation. Both of these cases are examples of pain being related to alignment and movement issues at joints distant from where the pain is percieved.

The old gospel song “Dem Bones” comes to mind with the leg bone connected to the knee bone, and the knee bone connected to the thigh bone, and the thigh bone connected to the hip bone.

With repititive use injuries the question needs to be asked is the pain local and/or referred. Additionally the question needs to be asked is the abnormal mechanics local and/or referred.

Bottom line:

- If you have an injury which is not responding to the obvious standard treatments ask is this problem a local and/or referred problem.
- Look back up the body towards the trunk as a possible source of the pain
- Look back up the body or down to the feet as a possible mechanical impairment being the cause of the problem.