



Given an overuse injury what are the expected movement faults

A common assumption is that faulty movement or mechanics of walking/running can contribute to the development of repetitive use injury. For example, taking too long of a stride can contribute to the development of shin pain. Running/walking with excessive pronation has been associated with the development of heel pain, Achilles tendonitis, or knee pain. Walking or running with one knee deviating towards the mid-line of the body (knee knocking) can contribute to the development of knee pain, hip pain, and foot pain.

If an individual is manifesting faulty movement or mechanics of walking/running and this leads to repetitive use injury, the question that arises is what is causing the faulty form? It could be the underlying structure/anatomy has limitations, weakness, or impairment. It could be the individual has not learned the proper running form or technique. This is comparable to the "chicken or egg allegory". Is faulty movement occurring because of anatomical/structural impairment, weakness, or limitation, or did faulty movement cause the repetitive use injury. Despite the fact that the answer to which came first the chicken or the egg is rarely answered the question still needs to be asked. Of course it could be both the underlying structure/anatomy has limitations, weakness, or impairment, and the individual has not learned proper form or technique.

Assuming that walking/running with faulty form or moving in a faulty manner can contribute to the development of a repetitive use injury, it should be possible to identify a faulty movement pattern, which is likely to contribute to the development of a specific type of injury. Conversely given a specific type of injury it should be possible to name a particular type of movement fault walking/running which contributed to the development of that particular injury.

Surprisingly there is very little creditable published information identifying a movement fault walking/running which is correlated with a specific repetitive use injury. Once movement faults can be operationally defined, and reliably measured hard evidence can be gathered to support the contention that a specific movement fault leads to a specific repetitive use injury. Given this information many repetitive use injuries

could be prevented by consciously correcting movement faults when walking/running.

Because there is very little scientific evidence on this topic recognize the following information is based primarily on my experience and opinion.

As an example given the injury of plantar fasciitis (pain on the bottom of the heel) I would expect to see the walker/runner demonstrate too long a stride and to strike the ground with the heel first. The subtalar joint (joint under the ankle) may pronate excessively or for too long a period of time. The mid-tarsal joint (joint in the arch of the foot) may pronate too much. There may be excessive external rotation (toe out) of the leg. There may be prolonged contact of the foot on the ground during stance phase (delayed heel off). The thigh may internally rotate too much. The knee may deviate to the mid-line of the body too much (knee knock).

The first two movement faults listed above occur primarily because of lack of skill and can be corrected with coaching and consciously modifying faulty form. The remaining factors could be occurring because of underlying anatomical faults, limitations, or weakness and may require an in-depth orthopedic examination and possibly specific remedial exercises, orthotic devices or braces. Ultimately, a combination of specific remedial exercise to address underlying anatomical faults, limitations or weaknesses and consciously correcting movement faults is likely the most efficient manner of resolving and preventing repetitive use injuries.

This process of identifying and injury and listing the expected movement faults has been done for injuries including: metatarsalgia (pain in ball of the foot); medial tibial stress syndrome (shin splints); posterior tibial tendonitis; peroneal tendonitis; Achilles tendonitis; IT band syndrome; patella femoral arthralgia (knee pain); groin pain; hip pain (bursitis); and (piriformis syndrome) buttock pain. If you are interested in knowing what movement/form faults that I occur with the above injuries please contact me.

If you are currently working with a healthcare professional to alleviate a repetitive use injury ask are there specific movement faults which might be correlated with the development of the injury? Ask, can I change the way I run or walk to help alleviate the injury? Do you think the movement faults I exhibit when walking/running occur because "I am built funny" or because I have faulty technique?