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Hip – Back Pain & Cycling

A general concept regarding injuries to the musculoskeletal system is that either too little joint movement or too much joint movement contributes to pain. If a joint is unstable/lax, and moves too much, it can result in pain, or if a joint is too stiff/stuck and does not move enough, it can lead to pain.

Treatment requires distinguishing whether a painful joint is either moving too much, or not enough. Depending on the anatomical configuration, a typical joint can move in 6 different directions. For example the hip joint can flex, extend, internally rotate, externally rotate, and move away from the midline of the body (abduct) and towards the midline of the body (adduct).

When there is pain around a joint examination can determine which direction of movement or how many of the 6 different directions of movement are painful, limited or lax.

The human body functions as a closed system. If one joint fails to move enough the adjacent joints often compensate and move too much. If a joint moves too much in one direction, of movement in the opposite direction is likely to be limited and stiff.

Using the hip joint as an example common diagnosis for pain located in the front of the hip include problems with the tendon of the hip flexor muscles, bursitis, joint arthritis or stress fracture. For the purposes of this article we will not address joint arthritis or stress fracture. Often, pain in the front of the hip occurs because the hip joint is too loose, moving in the direction of hip extension. If the hip moves too much in the direction of hip extension it may lead to excessive amounts of tensile loading (stretching) of the muscles and tendons on the front of the hip.

If the tissues (tendons, muscles, joint capsule, bursa) on the front of the hip are long and loose it is likely that the muscles and ligaments on the back of the hip joint are short/tight. If the muscles on the back of the hip joint are short and tight it is likely the adjacent joint the low back is relatively loose/long, likely in the direction of flexion of the spine.

In this scenario treatment would involve avoiding exercises or positions which length or stretch the front of the hip. If a muscle is too long the muscle is weak, when it is tested at the range of motion when the muscle is in its shortest position, near the end of the range of motion.

Strengthening exercises for the hip flexors muscles are indicated when the hip joint is in the maximum flexed position. The maximum flexed position for the hip is when the foot is at the 12 o'clock position on a bike pedal. Pulling up hard on a bike cleat from 9 o'clock to 12 o'clock (for right foot) on the bike will challenge the hip flexor muscle at its shortest length.

Next, muscles and ligaments on the back of the hip should be stretched. Care will need to be taken to isolate stretching to the muscles in the back of the hip without stretching the muscles and ligaments which cross the adjacent low-back joints. This can be accomplished on a bicycle by making sure the low back is not hunched and flexed forward especially when the foot is at 12 o'clock position. Keeping the low back relatively straight with chest up will prevent the low back from being stretched.

Do not automatically assume if there is pain in the front of the hip that the muscles and tendons need to be "stretched out". Do not automatically assume if there is pain in the low back that it needs to be stretched out in the direction of flexion. Make an assessment to determine if the painful area is actually short/tight or is it long/lax. For some to make valid assessment may require consultation with a health care professional. Adjust treatment according to whether tissues are actually short or long.