

Articulation

Hanneken Full Potential Physical Therapy Newsletter April, 2010

THE KNEE

Last month we focused on the ankle and its relationship to walking and exercising. The focus was upon keeping the calf loose so the ankle can move without forcing stress (compensation) on the foot or onto joints above the ankle.

This month, we are moving one joint above the ankle and discuss the knee. The knee seems to be a joint with a lot to say at times about how its feeling but is often not guilty of being the source of the pain or problem. It is really a well designed joint even though it appears to get into trouble more than it should. As a result it gets a notable amount of attention from doctors, orthopedic surgeons, physical therapists, and trainers. But what can you do to help this vulnerable joint be more trouble free as one goes through life? Possibly the first step in this process is just understanding in a basic sense how the knee works and where it gets into trouble in meeting life's challenges.

The knee is actually made of two joints. The primary joint is what carries the weight of the body and provides the basis for the motion needed for walking, sitting, and squatting. The other joint is where the knee cap (patella) glides on the front of the knee. Its purpose is to give the muscle on the front of the thigh (quadriceps) a greater mechanical advantage for the actions related to walking, stairs and squats. It gives the quadriceps a greater ability to control knee motion under all the demands in daily life, work, and sports.

Joints in the body have a classification scheme based on the type of motion available. The shoulder is a ball and socket joint. It allows the greatest amount of motion in the body due to the ball moving on the cup like socket. The knee is classified as a hinge joint; it is on the other end of the spectrum of diverse motion. Visually, one can imagine a door and its limited ability to move only in one plane of motion due to its hinges. The knee is

limited primarily to only one plane of motion as well. This is important since the hinge like motion makes it excellent for forward and backward movement, yet the other two planes of motion are very limited – lateral and rotational motion.

So the knee's design limits its ability to do rotation and lateral movements. Perhaps you have seen someone in sports or maybe you were unfortunately on the receiving end of a hit to the side of the knee. The result is a strain or worse yet, a tear, to the ligaments of the knee or the internal pads (meniscus). This is a traumatic onset of a knee problem. It is in many respects one of those "wrong place at the wrong time" events. Traumatic injuries are one source of knee damage and relate strongly to a sudden force which moves the knee in a direction of motion it was not designed. In many instances, we have little control over these events. We suddenly find ourselves, before we know it, grabbing our knee in pain.

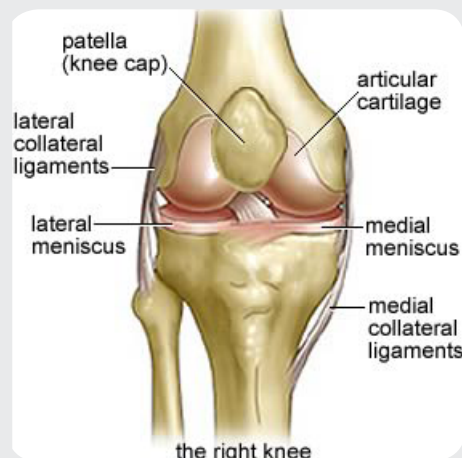
The other type of damage the knee incurs is the variable stress it receives daily due to the effects of weight bearing. This is the stress that we do have some control. This stress varies in its degree and can become a source of chronic knee pain that can be related to the tracking of the knee cap or to the actual knee joint. As stated earlier the knee does not rotate

very much, yet due to imbalance in the spine, pelvis, hip, or ankle; the knee will have to begin subtle but additional rotation to compensate.

Inappropriate rotation in any joint can lead to a premature breakdown of that segment or to abnormal mechanics that violate the basic motion laws of that segment to the point of creating pain. The key is inappropriate rotation. This additional motion which goes against the design of the knee joint will cause more friction on the joint surface while adding stress to surrounding tissues and ligaments. This is the basis for eventual osteoarthritis (OA).

Obviously, this can be a subtle process which can take decades for the changes to occur. However, it is so common that we just call it osteoarthritis and consider it normal. Medicating the pain without finding the source of the problem can delay appropriate care and set the person up for more invasive procedures. Eventually, joint changes can become so extreme and painful that you will need surgery or a total joint replacement.

The key is controlling this additional rotation forced on the knee from below or above. Last month we talked about stretching the calf to control pronation along with good shoes and possibly orthotics to help with problems from below the knee. Sources above the knee relate to spinal restrictions, pelvic alignment, and inadequate pelvic/hip control leading to excessive rotation on the knee and perpetual stress. In many respects, the knee needs a hip that works correctly. The hip is designed for rotation (like the shoulder). When it gets tight, it wants the knee to loan it a few degrees to help. The knee, being the generous fellow it is, kindly obliges but to its own eventual detriment. Dysfunctions in the spine and pelvis will also make life difficult for the knee. Life becomes difficult for the knee because it only has a limited ability to compensate due to it's hinge like motion.



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It is easy to reach for the Advil and attribute your pain to aging or a tough day. But if your problem is reoccurring, you should consider an examination by a PT who looks at the complete system. The problem could be in your spine, pelvis, hip, ankle or a combination of all of them. The knee is often but not always the innocent bystander. Reoccurring knee pain should be checked out to determine why it is reoccurring. Any pain that reoccurs should be evaluated by the appropriate health professional to understand what the source is.

"Take care of your body. It's the only place you have to live"

-Jim Rohn

"The human body is the only machine for which there are no spare parts"

-Hermann M. Biggs

"Sometimes your body is smarter than you are"

-Author Unknown

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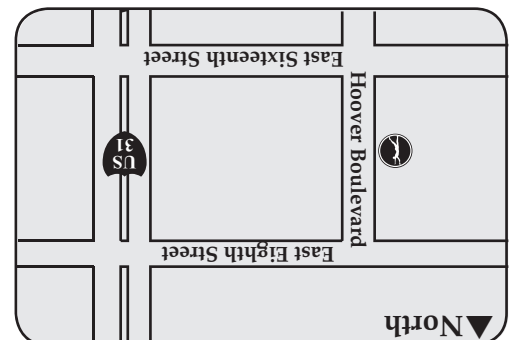
What Our Clients Have To Say:

"(Before Physical Therapy) I was in constant pain and could not do anything athletic. (Now) I'm finally able to run again. I am no longer in constant pain. I have also learned why my knee was in pain before and the type of exercises I need to do to keep it stronger."

---- Kim Loomis

For more patient testimonials, please visit fullpotentialpt.com!

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