

OPTIMAL HEALTH UNIVERSITY™

Presented by Randal Burkholder, DC

Combating Common Knee Injuries

Patients often ask Dr. Burkholder about the origins of knee pain. A number of conditions may lead to this pain, but, surprisingly, the source often lies in the spine. Therefore, chiropractic care is frequently the key to alleviating knee pain.

Dr. Burkholder is committed to educating patients on a variety of health-related topics, particularly those where the benefits of chiropractic are clearly evident. That's why this handout is dedicated to identifying and combating common knee injuries.

The knee joint is located between the femur (thigh bone) and tibia and fibula (shin bones). The patella (knee cap) is situated across its broad front. Ligaments on each side of the joint provide support and limit side-to-side movement. Cruciate ligaments within the joint crisscross diagonally over one another, protecting the knee against over-bending and over-straightening.

Muscles in the front (quadriceps) and back (hamstrings) of the thighs are responsible for approximately 30 percent of a knee joint's stability. But it's a delicate balance. The tighter or weaker these muscles are, the higher the likelihood of knee pain and injury.

The following are the most common conditions that lead to knee pain.

Spinal Misalignment

Although not directly connected to the knees, misaligned spinal bones



(vertebrae) can wreak havoc on body posture and spark a condition known as **vertebral subluxation**.

How do vertebral subluxations affect the knees? Sacroiliac (SI) and lumbar (low-back) subluxations may affect hip and, in turn, leg alignment, making one leg "shorter" than the other. This puts disproportionate strain on the entire lower body, including the knees.

Dr. Burkholder uses safe, all-natural maneuvers known as **chiropractic adjustments** to care for patients with this all-too-common condition.

Hip Misalignment

Clinical evaluation shows that anterior knee pain (AKP) — at the front of the knee — is typically associated with SI joint dysfunction. This critical joint is located next to the spine and connects the sacrum (the triangular bone at the bottom of the spine) with the ilium (pelvic bones).

The theory is that SI dysfunction may contribute to muscle inhibition, leading to knee pain. In a study of 18 patients with substantial muscle tightness and related knee pain, all showed significant improvement after chiropractic adjustment to the SI joint (*J Manipulative Physiol Ther* 1999;22:149-53).

A subsequent study involving 28 pa-



tients with AKP produced the same positive results (*J Manipulative Physiol Ther* 2000;23:76-80). But the exciting news doesn't stop there.

In February, a cohort of 20 patients was divided into two groups: 10 who received SI adjustments and 10 who received adjustments to their tibio-femoral (knee) joint. While both groups experienced a boost in muscle strength, researchers noted a more "significant improvement within the SI manipulation group." (*J Manipulative Physiol Ther* 2006;29:145-9.)

ACL

If you've ever had an injury involving an anterior cruciate ligament (ACL), you may recall hearing a "pop" emanating from inside your knee — along with swelling and excruciating pain.

The ACLs, which extend vertically in front of the knee, act as stabilizers. A common sports-related injury, tears to the ACL can occur during any fall that includes twisting of the knee.

MCL

The medial collateral ligament (MCL), located inside the knee, is another crucial knee stabilizer. MCL injuries often occur simultaneously with those affecting the ACL.

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In both cases, however, prevention — in the form of strengthening surrounding muscles and keeping the spine in proper alignment — can minimize the risk of injury.

Meniscal Tears

Menisci are wedge-shaped cartilage structures situated in the knee joint between the femur and tibia. Each knee joint contains two menisci: the lateral and the medial meniscus.

“Meniscal injuries often accompany twisting leg injuries that occur while full weight is on the foot. Swelling occurs after several hours and walking up and down stairs becomes painful.” (*Am Fam Phys* 2004;69:2698.)

PFPS

Patellofemoral pain syndrome (PFPS) is a common sports-related disability of the knee joint. New research shows that increasing hip strength and flexibility is the answer (*Am J Sports Med* 2006;34:630).

Synovitis & Hemarthrosis

Synovitis is an inflammation of the joint lining. This condition is commonly associated with minor injuries to the knee.

Severe injury, on the other hand, may cause blood to seep into the knee joint: a condition known as hemarthrosis.

Arthritis

Osteoarthritis (OA) is the most common arthritic condition associated with knee pain. Others include rheumatoid arthritis (RA) and retropatellar arthritis (chondromalacia patellae).

Sometimes referred to as degenerative joint disease, osteoarthritis (OA) erodes protective cartilage in joints. When this occurs, bones rub against each other, causing pain, bone spurs and degenerative changes.

Unfortunately, it's possible for patients with OA to unknowingly make a bad situation worse. “To keep their knee stable, patients will often freeze

their range of motion and simplify the steps necessary to perform a movement. The combination of restricted knee movement and increased co-contractions puts additional stress on the joint, which in turn can accelerate OA disease progression.” (*Fam Pract News* 2005;35:50.)

Taking prescription and nonprescription NSAIDs (nonsteroidal anti-inflammatory drugs) isn't the answer either. That's because “serious adverse effects are associated with oral NSAIDs.” (*BMJ* 2004;329:1317.) Plus, NSAIDs do nothing to prevent the condition; they only mask pain.

Instead of drugs, doctors of chiropractic suggest preventing OA by maintaining a healthy weight and not overburdening knee joints. “Being overweight before the age of 40 and doing demanding physical work were both identified as risk factors for osteoarthritis of the knee.” (*J Epidemiol Community Health* 2003;57:823-30.)

ITBS

Iliotibial band syndrome (ITBS) is the “most common cause of lateral knee pain in runners.” (*Sports Med* 2005;35:451-9.)

Classified as an “overuse injury,” ITBS is sparked by excessive running in the same direction on a track, greater-than-normal weekly mileage and downhill running. Studies have linked a weakness or inhibition of the lateral gluteal muscles as a causative factor in this injury. “When these muscles do not fire properly throughout the support phase of the running cycle, there is a decreased ability to stabilize the pelvis.” As a result, other muscles must compensate, often leading to excessive soft tissue tightness and subluxations (*Sports Med* 2005;35:451-9).

Popliteus Tendonitis

The same behaviors that cause ITBS — excessive running in the same direction on a track, greater-than-normal weekly mileage and downhill running — can also lead to an inflammation of the popliteus tendon, which extends

horizontally behind the knee. The condition is known as popliteus tendonitis.

Backpacking enthusiasts are also susceptible to popliteus tendonitis, “often complaining of no symptoms for several days after ascending into the mountains, only to experience the symptoms at the end of a long, rapid descent.” (*Am J Sports Med* 1977;5:31-6.)

Fluid in the Knee

Bursas, fluid-filled sacs, are located behind the knee both above and below the knee cap. When the bursas become inflamed, a condition known as bursitis develops. Fluid can also collect in the form of benign cysts — known as Baker's cysts — behind the knee.

Osgood-Schlatter Disease

A repetitive-use problem, Osgood-Schlatter disease generates pain in the tibial tubercle (the bony prominence beneath the knee) region of the leg and is thought to be associated with microfractures. If patients don't refrain from the activity causing the microfractures, “bone remodeling and a characteristic bump at the top of the tibia” may occur (*Pediatr News* 2004;38:36).

Don't Ignore Pain

Pain occurs for a reason. It's your body's way of getting your attention and saying “hey, I need some help here!” So don't ignore the message. If you are experiencing any degree of knee pain — even just the occasional “twinge” — let your doctor know. Your knees and your entire body will thank you.

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