Protect Your Knees

One of the most common sites for injury is your knees. In fact, there are dozens of separate documented types of knee ailments and injuries. Chances are that you've fallen victim to at least one of them in the past. The knee is essential to walking, running, kicking, sitting, using the stairs and getting up from a chair. If the knee weren't there to bend, none of these activities would be possible. However, the knee doesn't think for itself! This hinge joint will do whatever the hip and/or the foot will tell it to do – which makes the biomechanics of your leg crucial to good knee health. So here's a checklist of things to look at:

1. Assess your shoes. Worn-out shoes can cause knee problems. If they are worn down at the heel, or you've been wearing them for quite a while, your shoes can't absorb shock as well as they used to. The average shock absorbing capacity of athletic shoes is reduced by 50%, after you've logged 300 hours in them, and goes down to 20% after you've worn them for 500 hours. So do the math on the "real age" of your shoes – and go shopping for new ones.

2. Ditch the high heels. I know fashion dictates that women wear these, and they do flatter our legs – but they are very harmful to our knees! In fact, women who wear high heels (higher than 2") every day have a greater risk of developing osteoarthritis in the knee. High heels force the foot into an unnatural angle, throw the body forward and increase the pressure on the knee joints by 23%, especially under the kneecap – a prime opportunity for osteoarthritis.

3. Examine your gait. You should be striking on your heel, rolling forward through the length of your foot toward your lesser toes, and then pushing off the floor with your big toe. If you are not doing that, your gait is likely compromised, and you should have your movement patterns assessed by a qualified personal trainer or physiotherapist. There may be disfunction in the hip muscles that can

be addressed through corrective exercises or therapy.

4. Are you overusing your knees? If you do the same kind of exercise, whether cardio or strength training, over and over again, you are setting yourself up for repetitive stress injuries. Vary your workouts in type, time, and intensity during your week.

5. Are your leg muscles weak or is their strength imbalanced? Often the vastus medialis (part of the quadriceps) is the culprit in knee pain. If this muscle is weak, the kneecap can be pulled to the outside, causing knee pain. Mini squats with a small ball between your knees, or sitting on a chair and squeezing the ball between your knees, can help strengthen this muscle. Also, your quadriceps muscle (the front of your upper leg) should be not more than 30% stronger than your hamstrings. Cyclists and runners often develop such an imbalance. Check out hamstring exercises, such as weighted curls, to regain balance in your muscle strength. Cycling in particular is all about the quads, so do other types of cardio and strength training, such as cardio classes. Classes ideally will have forward, rear and lateral movement patterns to balance demand on the muscles.

6. Observe your form. Keep your knee from going over the end of your toes, stop a squat when your knee angle is 90 degrees or greater. Don't take very deep steps on a stepper machine – keep the bend at no more than 70 degrees here. Safe movement patterns will protect your knees.

7. Use your butt! Engaging your glutes (butt muscles) is important when standing up, returning from any lunge or squat position, or climbing stairs. If you don't engage the glutes, the strain travels down to the next joint – the knee – and this work is not the knee's job! The knee then undergoes tremendous strain it wasn't designed for.

8. Cyclists need to have the proper height on their bike seats. If it's too

low, you may have pain on the inner side of the knees, and if it's too high, you may have pain on the outside of the knee. When the bike pedal is at the bottom position, your leg should be almost straight, with a soft knee.

9. Excess body weight can contribute greatly to stress on the knees, and put you at much greater risk for osteoarthritis. A pound of body weight creates 6 pounds of pressure on the knees, so even 15 pounds of excess weight adds 90 pounds of stress on the knee joints.

10. Are you stretching daily? Stretching restores your hard-worked muscles to their resting lengths, and reduces the stress on all joints. Plan to devote 10 minutes of downtime after a workout, or at the end of your day, to gentle stretching. It's great for both the body and the spirits!