What is Osteoarthritis?
Osteoarthritis is a disease process that affects the cartilage within a joint. Cartilage exists at the surface of the ends of the bones and provides joints with a gliding surface and shock absorber during activities of daily living. Osteoarthritis causes the cartilage layer to break down and wear away, exposing raw bone. The rubbing of bone on bone in the joint causes symptoms of pain, swelling and stiffness. The body’s reaction to this condition is the formation of more bone (bone spurs) and increasing stiffness of the joint. These symptoms are often the reason why patients with osteoarthritis seek relief and treatment.

Who gets Osteoarthritis?
Osteoarthritis is the most common form of arthritis. Approximately 14% of all Americans (46 million) have osteoarthritis. Generally, osteoarthritis occurs as an accumulation of the wear and tear of the joint, and is more common in older adults. However, osteoarthritis can affect younger adults, primarily as a result of an injury to the joint. Osteoarthritis is more common in men under the age of 45 and more common in women over the age of 45. Other illnesses may also affect the cartilage in joints. An important factor that contributes to the development of osteoarthritis is excessive body weight or participation in recreational or professional activities that overstress certain joints.

What can I do when I am diagnosed with Osteoarthritis?
Osteoarthritis is a disease process that affects not only your joints: it can also cause stiffness in the surrounding tendons, ligaments and muscles. This may make it difficult for you to maintain your normal level of activity, and may significantly affect your ability to enjoy life. Exercise is one of the most effective treatments for osteoarthritis. A routine exercise program can decrease joint pain and stiffness, while strengthening the heart. Exercise, when done correctly, has practically no side effects and can be done in a supervised (via physical therapy or fitness training with a professional) or non-supervised fashion in a gym or at home. Your doctor can help you identify exercises that are good for your particular situation. Exercise, especially when coupled with a proper diet, will also help you with weight control. Every pound of weight you lose through exercise and/or diet will be approximately 5 pounds of weight that your knee does not have to carry! Weight loss should therefore be an important part of your contribution to treat Osteoarthritis. A dietitian may help you develop a weight loss program that suits you best.

What can my doctor do to help me?
Many patients with Osteoarthritis are afraid that they may need immediate surgery. That is not the usually the case. Many non-surgical methods exist that will be available to your doctor to help you live with osteoarthritis and keep your pain under control while allowing you to be as active as you would like to be.
Initial Treatment

- Activity Modification (avoiding activities that make symptoms worse)
- Avoid sitting or kneeling in the bent-knee position for long periods of time.
- Adjust a bicycle or exercise bike to decrease the resistance and adjust the seat to an appropriate height. You should be able to spin the pedals of an exercise bike without shifting weight from side to side, and the knees should not be fully extended at the lowest part of the pedal stroke.
- Avoid bent-knee exercises, such as squats, deep knee bends, or 90-degree leg extensions.

Medication by mouth:
- Tylenol (Acetaminophen)
  Tylenol is very effective for pain control. It does not decrease the inflammation alone and is therefore often combined with anti-inflammatory drugs
- Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
  These drugs are very effective in reducing pain and swelling. Often it is necessary to try different NSAIDs to get the best effect.

Medication by injection:
- Steroid injections
  A one-time injection of a steroid directly into the joint, is a powerful anti-inflammatory agent, and effectively decreases the swelling of an osteoarthritic joint. A single steroid injection can provide relief from symptoms for several months to a year and longer, with little side effects.
- Viscosupplementation
  These drugs act as a lubricant for the joint and can decrease the swelling. Generally, one or three injections may be necessary to complete the treatment. These medications are typically only beneficial for those with mild arthritis and who have had a favorable response to steroid injections.
Exercises and Stretching

Strengthening of the quadriceps muscles (anterior thigh muscles) and stretching of the hamstring muscles (posterior thigh muscles) are extremely important to stabilize the patella and improve lower extremity mechanics. Maintaining strong quadriceps will aid in decreasing the symptoms and frequency of patellofemoral pain.

**Quadriceps Sets** - Tighten muscles on top of the thigh by pushing knees down into the table or surface. Hold for 5 seconds. Repeat this exercise about 15-20 times every hour.

**Straight Leg Raises** - Tighten muscle on the front of the thigh, then lift your leg up about 8-10 inches off of the surface. Make sure that you keep your leg straight and knee locked. Hold for 5 seconds, then lower to the surface slowly, once your leg rests back on the table relax, then repeat. Do 3 sets of 15 for 2-3 sessions per day. Make sure that you perform this exercise on both legs.

**Wall Slides** - Leaning on wall, slowly flex your knees into a squatting position. Do not go past the point where your thighs are parallel with the ground. (Hint: When you cannot see your toes you have gone far enough.) Hold the squatting position for 3 seconds then extend your knees sliding up the wall to the starting position. Do 3 sets of 10-15 for 2-3 sessions per day.
Elliptical Machine and/or Exercise Bike (Recumbent or Stationary)
Use as tolerated. Increase both time and resistance. On the bike remember to adjust the seat height to avoid deep knee flexion during pedaling.

Leg Press – Excellent for quad muscle strengthening. Remember no knee flexion greater than 90° as this can lead to anterior knee pain. Do Not use the leg extension machine as this will aggravate the knees and lead to anterior knee pain.
Hip Abductors – Lay on your side. Keeping the up leg’s knee extended, move the up leg up and down as shown in the below diagram. Do 3 sets of 10-15 for 2-3 sessions per day.

Hip Adductors – Lay on your side, placing your up hip and knee in the position shown below and move the down leg up and down as shown, keeping the knee extended. Do 3 sets of 10-15 for 2-3 sessions per day.