

## Is Jumper's Knee Keeping You On the Ground?

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### Jumper's Knee

Overuse injuries to the patellar tendon may affect athletes in volleyball, basketball, soccer, and tennis (1). Known as jumper's knee, this injury can be debilitating and affect an athlete throughout his or her career (1). Athletes who suffer from this condition experience pain in the distal patella tendon (the portion of the patella that originates from the base of the patella and inserts into the tibial tubercle on the tibia). Jumper's knee was originally considered an inflammatory condition brought on by straining the knee during jumping and running activities, but now it is considered to be a degenerative, non-inflammatory condition caused by repetitive tendon overload.

Some athletes experience numerous episodes throughout their athletic career. Many athletes will attempt to play through the pain, with symptoms affecting their performance. Others will require surgery when rest and conservative treatment fails to alleviate pain and improve function.



Figure 1. Standing Quadriceps Stretch



Figure 2. Hamstring Stretch

### Training Program

Athletes who have experienced jumper's knee in the past may be able to reduce their risk of reagravating this condition with a proper training program. This article will present a preventative training routine. It must be stressed though, that if you or a member of your team is experiencing acute symptoms, do not substitute this program in lieu of a visit to your medical provider.

### Flexibility Training

Researchers from Belgium conducted a two-year prospective study to investigate the intrinsic risk factors that contribute to the onset of jumper's knee (2). They

found those who developed jumper's knee were less flexible in the quadriceps and the hamstrings when compared to healthy subjects (2).

All athletes who compete in high risk sports should participate in a regular flexibility program. The standing quadriceps stretch (figure 1), a hamstring stretch (figure 2), and the kneeling hip flexor stretch (figure 3) should all be performed daily throughout the season at the end of practice or competition. Perform two to three repetitions of each stretch, holding each stretch for 30 seconds.



**Figure 3. Kneeling Hip Flexor Stretch**



**Figure 4. Step Down Exercise**



**Figure 5. Decline Single Leg Squat**

## Strengthening Exercises

Despite the fact an individual participates in a sport, some athletes do not possess an adequate baseline level of fitness. In an attempt to prevent a recurrence of jumper's knee, closed kinetic chain exercises should be included in one's training program (see table 1). Despite what you may have heard or read, do not perform these exercises if they are painful. If an exercise is painful, stop the exercise, and consult with your medical provider. Painful programs may be effective when performed under the supervision of a physical therapist or an athletic trainer.

### Step Down (Figure 4)

Stand on one leg on a step four to eight inches off the ground. Bend your hip and knee (as if you were performing a single leg squat) lowering the non-weightbearing leg towards the ground. Touch the heel to the ground but do not place your weight on the foot. Attempt to keep your pelvis level and your ankle-knee-hip in alignment throughout the step down.

### Squat and Decline Single Leg Squat (Figure 5)

The traditional squat is an effective exercise for increasing functional lower extremity strength. In addition to the traditional squat, you should also perform a single leg squat. Position yourself so that you are standing on one leg on a step. Once in position perform a single leg squat attempting to maintain alignment of each lower extremity joint. Perform two to three sets of 15 – 20 repetitions. This exercise can also be performed on a 25 degree angled step.

## Summary

Jumper's knee can be a painful condition that may affect athletic performance or sideline one from competition. Addressing flexibility issues and increasing lower extremity strength may help to decrease the onset or recurrence of patella tendinopathy.

## References

1. Peers KHE, Lysens RJJ. (2005). Patellar tendinopathy in athletes. Current diagnostic and therapeutic recommendations. *Sports Medicine*, 35(1): 71 – 87.
2. Witvrouw E, Bellemans J, Lysens R, Danneels L, Cambier D. (2001). Intrinsic risk factors for the development of patellar tendinitis in an athletic population. *American Journal of Sports Medicine*, 29(2): 190 – 195.

**Table 1. Jumper's Knee Preventative Program**

<b>Stretching Exercises</b>	<b>Perform daily after practice or competition. 2 – 3 repetitions for 30 second holds</b>	
	Hamstring stretch	
	Quadriceps stretch	
	Kneeling hip flexor stretch	
<b>Strengthening Exercises</b>	<b>Perform each exercise two days a week</b>	
	Step Down Exercises	2 – 3 sets x 15 repetitions
	Traditional Squat	3 – 4 sets x 8 – 10 repetitions
	Single Leg Squat	2 – 3 sets x 15 – 20 repetitions

## About the Author

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