

## Medical Clearance, Risks & Your Heart Rate

You should obtain the clearance of your family doctor before beginning this program. The workout we are describing is a high intensity workout designed for those interested in a high level of conditioning identical to that of a brisk run. You should get a heart rate monitor and elevate it as high as your doctor will allow.

Your maximum heart rate is roughly 220 minus your age. So a 40 year-old's maximum heart rate will be about 180. If your doctor permits, you should pedal moderately quickly for 3 minutes as a warm up and then increase until your heart is 144 (80% of maximum), 172 (90% of maximum) or even 180 (100% of maximum) and keep it elevated for the duration of the workout.

Elevating your heart this high can result in heart attack, arrhythmia or death in susceptible individuals.

However if it is deemed safe and you are so inclined you can obtain a superb cardiovascular and lower extremity muscular workout with little trauma to your joints. This is a workout equivalent to a fast run without the pounding. You should have zero pain from beginning to end. If you have any joint discomfort you should stop and see your Orthopaedist.

To access a video on how to use an elliptical to protect your knees and get a great cardio and leg muscle workout, please visit our website.

[www.ismoc.net/physical-therapy-video.html](http://www.ismoc.net/physical-therapy-video.html)



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## The High Intensity Elliptical Workout

The elliptical is an excellent cardiovascular and lower body workout. It is particularly useful for persons with chondromalacia of the patella or patellar tendinitis when used as described below.

### How To Use

**Hold on to the stationery handles in front of you or the rails on the side, do not use the movable arm pieces.**

There are 2 reasons for this:

1. Holding the stationery handles will allow you to pedal faster, whereas holding the handles will not allow you to go as quickly as you otherwise could – thus limiting the intensity of the workout. This is because you can pedal faster with your legs than your arms can comfortably move. If you do not pedal quickly you

must increase the resistance to achieve the same workout. However, high resistance is associated with more knee pain in susceptible individuals and should be avoided.

2. Holding the arms forces you to stand more upright which puts more stress on the patella and patellar tendon. Leaning forward produces less stress on the patella and adjacent tendons. If you hold on to the stationery handles or railings you are able to lean forward much more and in most cases eliminate your knee pain.

### **Lean forward as much as you can while pedaling.**

As just described, this brings your center of mass in front of your kneecap which results in less strain in this vulnerable area. At the same time it produces a better workout for your gluteal muscles and hamstrings. Persons with Chondromalacia Patellae and Patellar Tendinitis will notice much greater comfort.

### **Keep the resistance low.**

It shouldn't be so low that you are falling off, but you should not feel significant effort pedaling. This varies machine by machine. The idea is to be able to pedal fast and for a prolonged period.

### **Pedal quickly.**

You should start a little slower for the first 2 minutes and then increase to a level that allow you to elevate your heart rate to the desire level for the duration of the workout. This is uncomfortably fast for most people, and you will need to keep your eyes on the dials on your machine to push yourself to maintain this pace.

### **Duration & Frequency of Workout**

Your first workout should only be for about 3 minutes. You should increase about one minute each workout. You should workout every other day or 3 days per week. For the first two weeks go easy. Your body needs time to adjust to the elliptical and you don't want to become injured by starting off too quickly. Your total time should not exceed 15 minutes. This is an intense workout and you should feel exhausted by the end. It is akin to a prolonged sprint. Longer duration will not produce any further health benefits.

