

## **STRENGTH TRAINING FOR THE MARTIAL ARTS: ALTERNATIVES TO THE SQUAT**

### **The Back Squat**

There is little debate about the importance of lower body strength and power to the competitive martial artist particularly those involved in grappling arts. The back squat is often the exercise of choice for developing these qualities. However, the back squat is a very advanced exercise requiring considerable flexibility and strength. Novice athletes often perform this exercise with improper technique and this greatly increases the risk of injury and diminishes training gains.

When performing the back squat, the bar is placed on the back of the shoulders across the Trapezius muscle, and the movement is performed with both legs at the same time. The back squat can be performed to different knee angles. If the squat is done below a knee angle of 90 degrees it is referred to as a full back squat. If the back squat is performed to a knee angle of only 90 degrees it is called a half squat, and if the knee angle is kept above 110 degrees it is called a quarter squat.

Although certain circumstances require the use of a partial range of motion (e.g. after a knee injury), the back squat should generally be done throughout a full range (See Figure 1). The full back squat is an advanced exercise and should be performed only by experienced athletes. A full back squat can also be very humbling. I have met many novice athletes who can perform a quarter squat with 300 pounds but when they are asked to descend below a knee angle of 90 degrees they can barely lift 180 pounds. Before I continue, let me say this: If you are a novice athlete and have never done full squats consult a qualified strength coach before you start!

## **Variations of the Single Leg Squat**

The back squat is excellent for improving power and strength in the lower body but is often too advanced for the novice athlete. Furthermore, many athletes are unable to perform a full back squat due to poor flexibility and strength. As a result, they develop very poor strength at knee angles below 90 degrees. This can be catastrophic for the martial artist, especially the grapplers. It is very common for grapplers to find themselves in a fully flexed knee position during a bout. Not only do they have to resist submissions in this position but they are often required to produce large amounts of power from knee angles below 90 degrees. A good example of this is a single or double leg takedown. It is critical, therefore, that strength be developed in this position so that performance can be maximized and the risk for injury be minimized.

Single leg squats are an excellent alternative to the back squat. There are many types of single leg squats but I will give you two variations which are very beneficial for the competitive martial artist. These exercises are the dumb bell split squat with the front foot elevated and the Bulgarian split squat (See Figure 2 and Figure 3). Both exercises permit a full range of motion to be performed and are ideal for developing strength and power in the lower body. It is recommended that beginner athletes start with the dumb bell split squat with the front foot elevated. More advanced athletes can begin with the Bulgarian split squat.

### **(a) Dumb Bell Split Squat Front Foot Elevated (See Figure 2)**

1. Elevate the front foot 4 to 6 inches high on a small box or platform.
2. Assume a split squat position which should be a medium wide stance front to back.
3. Ensure that throughout the entire movement both feet are pointing forward, the hips remain square and level, and the shoulders are kept square and level.

4. Ensure that throughout the entire movement, the heel of the rear foot remains elevated and that the front foot remains flat on the floor.
5. Hold the dumb bells at the side of your body.
6. Inhale as the descent is commenced keeping the front knee in line with the toes and back straight.
7. Descend until the knee angle is below 90 degrees.
8. Exhale during the ascent keeping the back straight and knee in line with the toes.

(b) Bulgarian Split Squat (See Figure 3)

1. Address the barbell in the squat rack with the hands evenly spaced and slightly wider than shoulder width.
2. Place the barbell on the upper portion of the Trapezius muscle.
3. Step back and assume a split squat position with the rear foot elevated 6 to 8 inches.
4. Keep the elbows under the bar throughout the entire movement.
5. Ensure that throughout the entire movement both feet are pointing forward, the hips remain square and level, and the shoulders are kept square and level.
6. Keep the heel of the rear foot elevated and ensure that the front foot remains flat on the floor throughout the entire movement.
7. Inhale and commence the descent keeping the back straight and front knee in line with the toes.
8. Descend until the knee angle is below 90 degrees.
9. Begin the ascent and exhale at the half-way point.

In closing let me give you a few tips:

1. If you are not already performing regular weight training consult a physician before you start a program.
2. Consult a qualified strength and conditioning specialist for a program specific to your ability and needs.
3. Contact your doctor if you feel discomfort, aggravation or pain while performing an exercise.
4. Train smart and work hard!



**Figure 1.** Rocky Lanz, member of the USA National Bobsleigh Team, performing a full back squat with 240 kilograms (529 pounds).



**Figure 2.** Nick Ring, competitive mixed martial artist, demonstrating the Dumb Bell Split Squat with front foot elevated (Beginner Single Leg Exercise).



**Figure 3.** Nick Ring, competitive mixed martial artist, demonstrating the Bulgarian Split Squat (Advanced Single Leg Exercise).