

### ***The Muscle - Kick Connection***

What's the old saying - *If it ain't broke, break it?* In this article we'll begin to break down and discuss how each of the TKD essential muscle groups interact, and also how they affect some of the basic Taekwondo kicks:

#### **Core Muscles**

The Erector Spinae and Abdominals work together to stabilize your core. Virtually every movement we make, TKD related or otherwise, requires a strong core. Poor muscle tone in either of these areas can lead to poor posture and associated back, neck, and shoulder pain.

#### **Hips**

The core muscles complement the Gluteals and Hip Flexors. When the Hip Flexors are contracted, the leg is lifted upward. If we forget to tense our core during this movement, the pelvis will also rotate causing the upper body to move backward. Some of us experienced this when we started training – the proverbial falling on the Gluteus when kicking (they don't like that by the way). The Gluteals help to pull the leg back to its original position.

So let's look at these two groups together and follow them through a typical Chigo Chagi (axe kick). First the core muscles are tensed, followed by Hip Flexor contraction which pulls the straightened leg upward toward the face. When the leg has reached its maximum height, the flexors relax as the Gluteals contract. This causes the leg to be forcefully pulled downward to the starting position. Once these actions are completed, the core muscles relax until the next kicking motion is initiated.

#### **Thighs**

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Written by staff

Wednesday, 08 December 2010

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Let's switch gears and look at the mechanics of the front snap kick, or Ap Chagi. One of the fundamental kicks in the Taekwondo arsenal, Ap Chagi requires several combinations of movements be performed in order for the kick to be executed correctly.

From a sparring stance with the left foot forward, begin by lifting the right thigh upward. This will require contraction of the Hip Flexors and simultaneous contraction of the Biceps Femoris (hamstrings). Next, contract the Quadriceps while using the Hip Flexors to keep the thigh parallel to the floor. This will extend the lower leg upward allowing the instep or ball of the foot being extended to contact the target area. Once the kicking motion has been completed, contract the Biceps Femoris to retract the lower leg, and finally relax the Hip Flexors to return to the starting position.

### Calves

For many martial artists, the Calf muscles are an area to focus on. Although they may not seem important, this muscle group can add considerable power to your kicks. In the previous example, the right leg was lifted upward using the Flexors and Hamstrings. Now consider adding a quick contraction of the Calf muscles to get the thigh moving upward more rapidly. Most successful martial artists perform this additional step unconsciously. The trick is not to allow the Hips and Thighs to take a break during training. This is an easy trap to fall into due to body mechanics.

As we walk around during a normal day, the Calf muscles are under almost constant stress. As you take a step, each Calf muscle group is momentarily supporting your entire body weight before the other foot makes contact with the ground. Compare this to the Hips & Thighs – not much going on there during a normal stride. Where these muscle groups become more involved is when the stride increases. So instead of the normal 3 foot stride the average adult takes, place your hands on your hips for balance and lunge forward another foot or so. Now take the next step, and you'll see the difference. Going for a walk to the park? Try lunging there instead next time!

So when your legs are fatigued from kicking, don't do what feels natural by shifting the load to the Calf muscles. Instead, focus on lifting the thigh upward **without** the assistance of the Calves. This will help build muscular endurance in the upper leg.

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*Next Up: Putting it All Together*