

Specific Strength, Power, Endurance – Part 4 – Starts

By Susan Ellis

This article is the fourth in a four part series focusing on specific strength, power, and endurance for the straightaways, corners, and starts. This month our focus is on strength and power for starts. If you haven't read *Specific Strength, Power, Endurance – Part 1 – Straightaway – May 2006*, *Specific Strength, Power, Endurance – Part 2 – Straightaway Jumps – June 2006*, or *Specific Strength, Power, Endurance – Part 3 – Corners – July 2006*, I would suggest you do so now and then come back to this article.

Starts are hard to replicate off ice because of the lean and speed of movement required. It is difficult to attain the extensions required through the hip, knee and ankle. Power, strength and technique training specific for starts, for both off ice and on ice, is best done using resistance. You can use belts and turn cables to provide resistance but both require a partner, and the tension is not adjustable on either device. Using Techni-Cords, you can do them without a partner, adjust the tension, and either speed up or slow down the movements.

Having fast starts is a combination of technique, high power output and speed of movement. Of these, technique is probably the most important, power output is second, and speed of movement third. You may have great power and speed of movement, but if your technique is poor, you are just spinning your wheels. It really is worth your while to work on your technique before working on power and speed of movement. Before continuing this article you should go back and read *Start Position – March 2004* and the tip on the first push in *Training for Starts – July 2005*. The technical points contained in these two articles is what you will use as your technical basis for the Specific Strength and Power drills in this article.

Set Up Using Techni-Cords

You can use a single point attachment, attached at nose height, but a double point attachment, one nose height and one ankle height provides a more even resistance and better stability on execution. The tension used will depend on whether you are working on strength or power.

Place a chair in front of you and assume your starting position (*Start Position – May 2004*).

First Push Drill

From the starting position, extend through your hip, knee (and ankle if doing power or jumps). Imagine you are a jet plane just taking off. Your body follows the line of the plane taking off right through to the end of the extension. Your other knee drives forward under your chest while rotating the thigh outward. Do not allow the thrusting foot to pass in front of your knee. At the end of the extension your body recoils in the exact same manner as it extended to return to the set up position.

Second Push Drill

Set this up as if you have just landed your foot at the end of the extension of your first push. Your center of gravity (belly button) should be well ahead of your pushing leg and your butt is tucked under you. From here you drive out to a full extension through your hip and knee (ankle if doing power or jumps). Keep your other thigh rotated outward while driving the knee forward. At the end of the extension allow your body to reset back to the set up position in the same manner as it extended. It is extremely important not to allow your hips to drift backward (butt release) as you reset.

Double Leg Drill

This one is great for working both legs at the same time through the starting motion and you can really load up the resistance on this. Just make sure you have a good grip with your sneakers. Building a foot brace might help. Again ensure each extension is fully complete and on the reset, keep your butt tucked under you.

Strength and Power Programs

You can work either strength or power on the drills above.

Strength: Max strength is developed through slower movements with high resistance to allow the muscle time to recruit as much muscle fiber as possible. Tempo, or speed of movement, is controlled through use of a specific count. As a minimum a 2 out, 2 in count is best and the count can be as high as 5 in 5 out. What this means is that from the start of the movement at the set up position, to the completion of the movement at the end of the extension, will take two seconds, counting one – one thousand, two – one thousand. This is the ‘out’ count. Then from the completion of the extension to the return to set up is a two count. This is the ‘in’ count.

Samples of strength specific programs are:

- 4 x 10 reps (on each leg) using 2 out, 2 in, rest 2'
- 5 x 8 reps, 3 out, 3 in
- 4 x 12 reps, 1 out, 3 in

Power: Max power is developed through high velocity (fast) movement using moderate to high resistance. The goal here is to execute the movement as fast as possible, given the load, with the best technique possible. The return to set up can be a slower count to recruit muscle fibre and promote strength gains or a fast reset to promote speed of movement.

Samples of power programs are:

- 5 x 5 reps, X out, 1 in, rest 3' medium resistance (X stands for explode quickly)
- 3 x 5 reps, X out, 2 in, rest 3' medium high resistance

- 5 x 3 reps, X out, 3 in, rest 3-4' high resistance (the 3 in at high resistance gives an added strength component to the workout)

Power Jumps

Power jumps using the Techni-Cords closely simulate the strength and speed of movement of an on-ice start. As always, proper execution is super important so I would recommend getting the technique down first, laying a good foundation of strength, and then progressing to power and power jumps. Always ensure you are starting from the correct set up position and returning to the correct set up position at the end of each jump. Full extensions through the hip, knee and ankle are important to ensure you have worked all the muscle groups required for maximum power in each jump.

Start with 3 sets of 4-5 jumps on each leg and work your way up to 5-6 sets of 6-8 jumps. You should also start with a moderate resistance and work your way up to higher resistance. Rest in between sets should allow you adequate recovery to perform the next set with high power and speed of movement so rest is in the 2-3' range or even longer if you need it.

Another drill you can do using Techni-Cords is the Partner Pull start. For this, it is best to have two belts, one for you and one for your partner. If you don't have two belts make sure your partner has a very tight grip on the cords. Set up your start position and do a start simulating as closely as possible a start on ice. Your partner can either provide a very high resistance forcing you to make each movement more slowly, or a lighter resistance allowing you to move more quickly. Only take 5-6 steps at a time on this one. If you can find a small incline with good sneaker grip it works better than a flat surface.