

A Time to Get High, A Time to Get Low

By Susan Ellis

Many skaters are amazed when they come to an Ellis Edge camp and the first thing we tell them is we are going to start off in a high position. Imagine how confusing this must be for skaters who have been told all through their skating life that they need to skate LOW.

First let's clear up any confusion.

Yes, the ideal position when you are skating your absolute maximum speed is a LOW position. This is to utilize the powerful quad and ham muscles, extending them as much as possible, during the push so you can skate your absolute fastest.

The low position is defined as – angle between the foot and shin (ankle) is around 45 degrees, angle between the shin and thigh (knee) is 90 degrees, and angle between the thigh and spine is 45 degrees or less.

However, some key points must be made here:

- 1) Timing is crucial to generating maximum power.
- 2) Timing is determined by leg speed (turn over).
- 3) The speed you are going determines leg speed.
- 4) Leg speed determines time to transfer weight and push.
- 5) Time to transfer and push depends on skating height.

Timing, even before position, is probably the most important element in generating power. Skaters with great timing have a knack for applying pressure in to the ice and pushing just at the right time. They use their body weight, falling in the right direction, waiting until maximum pressure is exerted in to the ice (point of instability), and then they push. (see Delaying the Push – March 2003)

The faster the race or training the higher the leg speed. Look at the turnover of a 500m skater vs a 5000m skater.

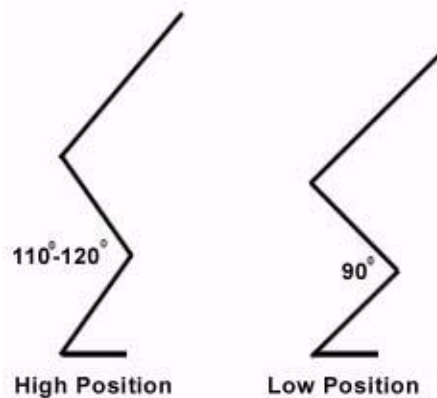
At higher speeds your pushes are faster but your recovery leg also comes in faster. Thus, even though you are leaning in to your pushes and waiting to the point of instability before you push, your recovery leg is moving fast enough to catch you again towards the end of the push. This is easy to do in the low position.

At lower speeds there is less leg turnover. Therefore there is more time to transfer your weight and your pushes are slower. However, you cannot slow down the speed your body falls once you have initiated the weight transfer. Once you reach the point of instability, your body's natural reaction is for the recovery leg to shoot forward to catch your fall before your push is complete. Now, to extend your leg to complete your push you must either push up, push back, or direct your landing foot outward to continue your weight moving in that direction. All of these result in a loss of power. Staying in a higher position at lower speeds allows your body more room to fall, allowing more completion

of the push before the recovery leg sets down. You have taken advantage of the crucial element of timing.

While it is very important to practice your ultimate low position, you need to be aware of the timing factor first. The faster you go, the lower your position can be and your timing should match the position. The slower you go, the higher you need to be to again match the timing factor. Doing laps and laps of slow, low skating will create some very bad habits in terms of timing and direction of push. After a few days of practicing timing in the higher position, we asked our group of Masters skaters at our summer camp to skate low and slow and have good timing. After only a few laps, one gentleman who had years of skating under his belt, stood up and yelled "That's crap! You just can't do that!"

So what's the solution?! For years we have been taught you need to skate laps and laps and laps to be able to hold your low position during a race. But when you think about it, the 500 short track (and 1000, 1500 long track) is probably the only race(s) where you maintain a low position throughout the entire race. In most other races (of course depending on the pace), we are in a slightly higher position. So do you need to practice the ultimate low position for any more than two minutes at a time? Spend some quality time in the low position going fast, breaking it down into shorter intervals, and spend some quantity time with quality in a higher position going slower in longer intervals. In the higher position you still want maximum angle compression, and your chest will still be at about 45 degrees, but the knee angle can be open to 110-130 degrees.



It takes a lot of strength and energy to hold a low position. Lactates start to build up and as they do we tend to get higher and lose leg speed. When this happens, timing will be your saving grace!

So, yes, we do want the low position for ultimate speed, it's just that we are going to make sure we have timing first!