

The Tip Over Toe Start

By Susan Ellis

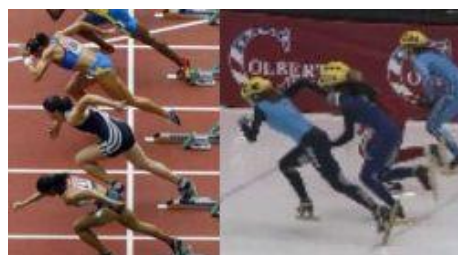
Editor's note: This start is not allowed under the current ISU rules. Please consult the ISU rules manual for the most current rules.

The tip over toe start has been around for a while and has been used very effectively by many top athletes such as Mark Gagnon, Francois Louis Tremblay, and Katherine Ruetter, just to name a few.

I noticed that at this year's World Cup there were many more athletes starting to use it. The tip over can be a very fast start if done correctly.

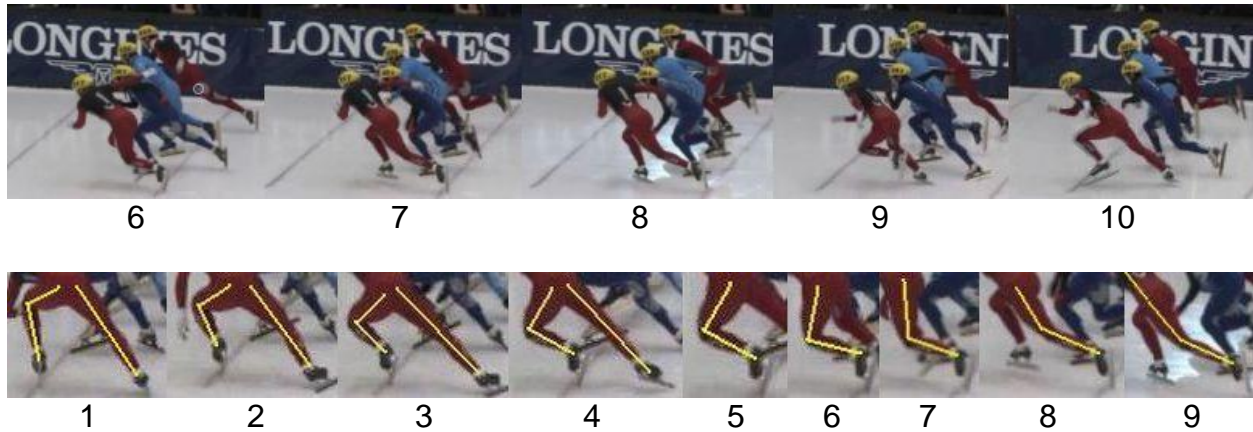
The goal of the tip over toe start is to allow the body to tip forward to an extreme angle and then launch your body further by pushing off the toe of the front skate. The set up position and the biomechanics of the first step are completely different than a traditional start where the propulsion comes solely from the back skate. The start has the potential to deliver much more hip drive than a traditional start as the hips are already well in front of the back skate in the set up. This allows the hips to engage right from the gun. In a traditional start the chest has a tendency to pop up which sacrifices forward momentum. With the extreme lean angle of the tip over start it is easier to keep the chest down and the momentum propelling forward.

In the tip over start you use your front foot to propel your body similar to a track and field start. Because you are pushing off the front foot you are already applying force from the line $\frac{1}{2}$ step ahead of traditional type starts, rather than applying force from the back foot. The running style action of the first step allows greater elongation of the hip flexor on the front leg, so the landing of the first step in front of the line is farther out.



So let's break down the walkover. One of the best tip over starters in the world is Francois Louis Tremblay.





Following the photo sequence above as we go through the mechanics of the tip over start:

The set up position:

In the set up position the weight is mostly on the front foot with very little on the back foot. The chest is down and the hips are set well in front of the back skate. There is just enough knee/ankle bend on the back leg to give enough of a push to tip the body weight forward over the front skate when the gun goes. The front knee and foot are turned slightly in towards the boards to allow better grip in to the ice and prevent slippage. This also allows more tip over time as the hip flexor on the back leg can open better when starting with a slight inward rotation on the knee.

Notice the extreme lean angle on the back leg.

The role of the back leg:

Once the gun goes the back leg pushes off to full extension through the hip, knee and ankle to allow the body to tip forward over the front skate. Look at the line of push off in the photos and video. It is dropping forward with no upward movement whatsoever ensuring forward propulsion with no wasted upward energy.

Once the back leg has pushed off to full extension the hips turn square to the straightaway and the knee and foot are pulled directly under the body (5, 6, 7). The squaring of hips, and the knee coming directly under the body and not outside the body, is what allows the extreme projection off the front foot. If the knee stays outside the body it interferes with the extension mechanics of the hip extensors preventing them from opening fully.

The knee continues to drive up towards the chest as high as possible during the extension of the front leg. Driving the knee high, and all the way through, helps with both the driving of the hips all the way through and the completion of the extension of the hip extensors. The knee and foot then turn outward again near the very end of extension so that they land pointing outwards.

The role of the front leg:

The push from the front leg is what gives you your propulsion to get your first step far in front of the line. It is critical to hold the knee angle on the front leg in a fixed position as long as possible while the body is tipping forward. Notice in the photos above how the knee angle remains constant as the shin and body fall towards the ice. If the knee angle opens up before the body has tipped far enough forward the push will be up in the air rather than out down the straight. Think of it as a plane taking off as opposed to a helicopter rising straight up. It is also critical to keep the chest pointing down towards the ice rather than up and out towards the straight.



Once the body reaches an extreme lean angle, and the back knee is slightly past the front knee, the front leg starts its extension. The push off the toe is very similar to a track and field start. It is important to extend fully through the hip, knee and ankle.

Once the front skate has landed the rest of the start to the first corner is as in a normal start as in photos 9-10 (see Start Technique – October 2008).

Click [here](#) to watch Robert Lawrence do what is possibly the best technical tip over start in the world.



Katherine Reutter uses a more front facing walkover start; ie: knee and hips are facing towards the straight more rather than slightly turned in. This may be costing her some tip over time as it becomes less stable in the ice once the tip over starts to happen. Also, because Katherine has her back skate too close to the front skate it prevents her from getting to the same tip over angle as Francois Louis gets and makes it harder to complete the hip extension of the push off the back skate.



She does get amazing hip extension though from the front leg.





Oliver Jean's tip over start above is not really effective in this video for a few reasons. The combination of facing too much to the side, as well as having his back skate too close to the front skate prevents him from pushing his back hip forward to tip his body over. And because his feet are too close together he needs more weight in back than should be, which again makes it difficult to tip over at the gun. Because of the set up mistakes, when he pushes with the back skate his weight drops down first (photo 2) rather than forward, his chest comes up (photo 3) and the push is straight up in to the air (photo 4) rather than projecting him forward. You can also see that in the 4th, 5th and 6th frames he still has not brought his hips around square so his back leg stays outside of his body rather than the knee driving straight up under the body. As a result you can see when he lands his skate it is actually behind the other skaters rather than in front of them.

One of the challenges of the tip over toe start is not to leave a gouge out of the ice from coming over the toe. Not putting enough weight forward in the set up, setting up facing too much towards the boards (or towards the inside of the track for wrong way starters), starting with the feet too close together, or too far apart may cause this. Although it can be a fast start, if you damage the ice consistently when you do it you may be assessed a penalty so make sure to do it properly.

And just because some skaters do it well, it may not be the right start for you. Some skaters are faster with it, but some are slower. It's a start that requires patience to wait for the right amount of tip angle before pushing to give you the forward momentum you need for subsequent steps. This is the main reason that many people who tried the Kangaroo start (jump over front skate similar to hockey cross over start) gave up on that one – they simply did not have the patience to wait for the body to fall far enough in front before pushing with the front skate. You should experiment with all types of starts to find out what works best for you. You may find it's the tip over toe, the traditional toe, or you may find it's the same old fashioned flat foot 45 degree start that's been around for hundreds of years.