

## Starts

By Susan Ellis

When it comes to the sprint distances in short track it is often the skater who wins the start who goes on to win the race. So being able to get off the line and to the first block in first place is a key factor in winning sprints.

Having the correct set up position for the start is critical to being able to load your first push, and to set your body in the right position for subsequent pushes.

You should go back and read the March 04 tip on Start Position and the July 05 tip on Training for the First Push. Both tips have been revised and warrant re-reading even if you've already read them.

As with everything in skating, technique is the key to accessing power on the start. That means putting your body in the proper positions to deliver power. A quick review of the March tip on set up position on the start line:

- Back foot about 45 degrees to the start line with hip positioned in front of back foot.
- Keep body square (no rotations) and hips and shoulders at 90 degrees to back foot.
- Front foot faces up the straight, not towards boards.
- Bend back ankle so pressure is in between mid foot and ball of foot.
- Back shin should be at an angle so knee is in front of back foot.
- Butt should be tucked under you with butt cheeks facing the ice
- Upper body not too low but shoulders are down and rounded. (do not put your belly all the way touching your thigh as this would be too low)



Once you have mastered the set up position your keys to power will be hip drive to full extension, knee drive, and maintaining body lean through low chest position.

Take a look at this video of Meng Wang in her start in setting a world record (42.35) in Quebec City in February 08.

[Wang video 1](#)

Breaking down the start:

In the set up position on the line: She has her center of gravity (belly button) positioned ahead of her back skate with her butt cheeks facing the ice. Although she is a bit low with her chest in her set up position she projects her hips forward very well as her chest rises to allow her leg to drive through. Many skaters will simply bring the chest up without driving the hips forward. Wang really projects her hips but it takes a bit longer as she needs to raise her chest to allow room for her knee to drive up.



As she projects her hips forward she:

- drives her front knee straight up under her chest to lock her pushing hip in a position to drive. Notice it has not rotate out yet.
- keeps her chest and shoulders low (compare with the skater beside her – Kalyna Roberge)
- her back knee continues to fall forward but does not start her push yet. Compare the knee angle on the picture above to the picture to the right. Knee angles are still the same as in the set up position. She does not start her push until her front knee has driven to a locked position under her chest.
- Her front skate is in back of her knee.



Now she starts her push with the back skate. Her front knee stays high and starts to rotate out while her hips thrust forward. The longer you can keep the front knee pointing straight ahead during the push, the more power from the pushing hip. The thigh, knee and skate should only rotate out at the last possible moment.

Look at the angle on her front knee. Front skate has stayed behind knee.

Notice how her back has stayed down.



Her chest stays down while she completes her extension through the hip.

Notice that she kept the same knee angle on her front knee that she has on the start of the push. It did not open up and drop her foot down to the ice. This allows her to access the full power of a complete hip extension. Notice again how her front knee has stayed well ahead of her skate.



In this photo you can see the complete extension through her hip. Look at how she has projected her entire body well ahead of her push.

Her front knee drives forward and up so that her knee is almost at hip height.



Notice the blue arrow indicating skate pointing outward giving the skate a firm grip from which to push from again.  
Green vertical line showing center of gravity ahead of pushing skate.  
Knee angle does not change as other knee drives forward.  
Compare this to the knee angles of the other ladies in the race.

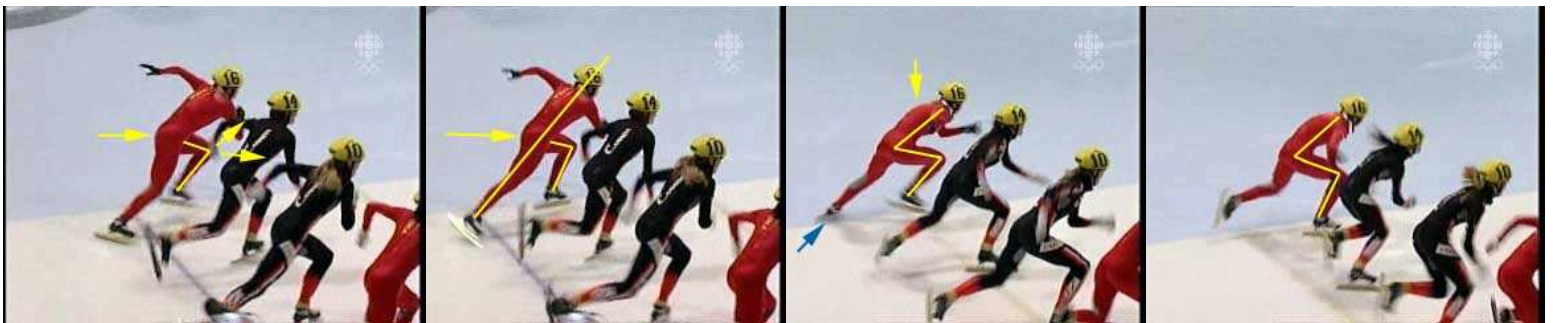


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As you look at the rest of the sequence of Wang's start you will see that her chest always stays low, her knees always drive high and directly under her chest before turning out as she starts her push, and she always projects her hips to full extension. Notice in the first three frames above she is ever so slightly behind the skater next to her (one reason I would have her raise her chest slightly in the set up position so it doesn't take as long to start projecting forward.) But by the fourth frame she has moved ahead of Roberge with a brilliant knee and hip drive.

Here is the same start taken from the other side. [Wang video 2](#).

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Her chest is a bit too low in the set up position (frame 1) which causes a slight delay in getting her weight moving forward. Wang would be better to start in the position you see in the second frame with her upper body just a little higher.

She does a great job of driving her hips under her and forward to set an even great angle on the back skate (look at shin angle) to push from and driving her knee up towards her chest.

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6



Her front knee stays high as she starts her push and stays high right through finish of push. Compare the knee angles of the two Chinese (in red) skaters to the two Canadian skaters (in black). Wang's chest did pop up a bit too much in frame 5 but she is forcing it back down in frame 6.

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High knee hip drive

Land with hips low, ankle bent

WOW!

Finishing push with ankle snap

Front foot, knee, thigh point out

Full projection of hips

Now lets look at her from a front view. This is a different video sequence from a World Cup in Montreal a few years ago. Wang is in start position 3. Watch how she drives her knees high up under her chest and keeps them there, only turning them out near the end of the push. This is so critical to getting the full power from the hip!

[Wang video 3](#)



Wang is the 3<sup>rd</sup> skater from the right.

Look at:

- High knee drive directly under chest.
- Thigh, knee, and skate rotate out to land.
- No shoulder rotations (look at the other Chinese lady and see huge rotations).