

**HOW TO WIN RACES
ON SHORT SLALOM SKIS:
LEARN FROM THE BEST**

by Olle LARSSON



ROSSIGNOL

Who is Olle LARSSON?



From 1975 to-77 Olle Larsson worked at Rossignol's Competition Service, France. Prior to this he ski raced and studied alpine ski coaching at the University of Grenoble, France. In the late 70's he worked as a **coach** for the Canadian National Ski Team.

Before starting **Rowmark Ski Academy** in Salt Lake City, Utah, he spent three years studying sport psychology at the University of Utah. He serves as the Program Director for Rowmark Ski Academy www.rowmark.org which has been attended by World Champions **Hilary Lindh** and **Picabo Street**. Other students that reached top 30 world rankings include **Alex Shaffer**, **Kristi Terzian** and **Ovidio Garcia**, Spain.

He frequently contributes articles on ski technique to various ski publications.

BECAUSE THEY CARVE SO WELL SHORT SKIS INCREASE A SKIERS LATERAL BALANCE: THEY ALSO DEMAND SUPERIOR FORE AND AFT BALANCE.

Since ski racing began, skiers have been preoccupied with carving rather than skidding turns. Carving turns is not only faster but the increased balance that comes from carving can make both the recreational skier and the downhill racer traveling at over 100 kilometers per hour feel more secure.

Male and female World Cup racers using skis 160 – 175 cm in length are greatly increasing their chances of carving turns. Every racer that has discovered this readily accepts the short time required to adapt his or her technique to these skis. Olympic Champion Pernilla Wiberg stated that it took her just a few runs to get used to them. Other world class racers report similar experiences. It is now evident that by simply changing skis, the racer can in a few short months, improve his or her carving in a way that would formerly, perhaps have taken years. Another added benefit is that in certain situations these shorter skis may prove to be safer for the knees. In case of a loss of balance that forces the skier back and into a seated position, the short new skis will often react with an upward lift of the ski tips. The lift of the tips will decrease the pressure on the knees and expose the ligaments to less physical stress

THE SHAPE OF SLALOM TRACKS LOOK LIKE GIANT SLALOM TRACKS

The slalom ski tracks that we see today indicate to us that we have entered into a new era of ski racing. Slalom skiing has changed forever! The extensive side cut of short slalom skis produce tracks that look like small giant slalom tracks. The improved carving and balance benefits both ski racer and recreational skier alike. Skiers will most likely feel the greatest improvement on steep groomed slopes where even high caliber racers have difficulty avoiding skidded turns. These new skis will also give the gifted giant slalom skier who has difficulties with slalom a chance to improve in that event.

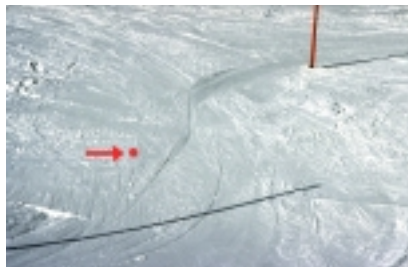


This photo shows a small radius turn produced by short slalom skis on an intermediate to steep slope. This track is the combined result of a short slalom ski (165 cm.) with a modern side cut and good ski technique. The short ski enhances maneuverability. It is easier and faster for the skier to twist and pivot the ski between turns, if necessary. These benefits will result in faster skiing with less chance of skiing out of the racecourse. In the women's World Cup race where these photos were taken only 4 athletes out of 60 starters did not finish. In the second run only 1 athlete out of 30 went out, which also result in increased safety.

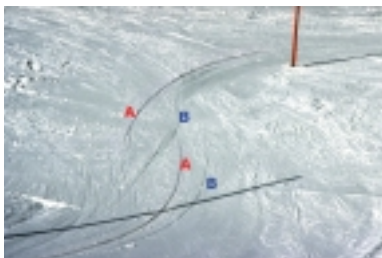
HOW IS THIS TRACK MADE?

Skiers must direct their skis on a line that will allow them to carve. The radius of the turn cannot be smaller than the ski can carve and hold. To successfully ski the ideal line it is essential for racers to look a minimum of two to three gates ahead. Do not worry if you cannot clearly see the closest gate when you look far ahead. Peripheral vision provides you with sufficient awareness of its presence.

This track tells us that the skier went from one arcing turn to another with little pivoting of the skis between the arc. If the slope is steep it is essential to redirect the skis by pivoting them between turns to obtain sufficient direction change for the next turn. The turn is finished soon after the gate. As the ski was placed on edge the racer did not use excessive muscular force that could have resulted in skidding. Instead, by relaxing she did not interfere with the carving capacity of the ski. It appears that the skier is placing all the pressure on the outside ski. There is no visible evidence of carving on the inside ski.



In this photo we notice how the racer went too straight at the gate and thus started the turn much later. As a result, the racer must pivot or twist the skis around when the ski should be carving. The resulting skid and loss of balance produces a slower performance. The red dot is the location where the racer in figure 1 started the turn. Poor line choice is the most common reason for slow times in slalom racing. Surprisingly enough, racers that ski too straight at the gate often make this mistake at the first gate in the course. Unless the hill is very flat, using this direct line probably requires a ski half as long as even the shortest skis.



This illustrates the two superimposed tracks. A illustrates the tracks of the carved turns and B those of the skidded turn. We can conclude that the direct, straighter line (B) is slower because the skidding decelerated the skier. Paradoxically, the skier travels a shorter distance in B. Skier B must edge the skis much more aggressively while skier A will position the skis on edge with a smaller angle which is more desirable.

WHAT IF YOU TRY TO SKI THE GOOD LINE BUT YOU CAN'T MAINTAIN IT.

It may be the case that even if you attempted to ski the line of skier A it would be very difficult to carve turns that perfectly. This difficulty would be compounded on a steeper slope. Clearly, your skiing ability still plays an important part in all of this.



HOW THE WORLD CUP SKI RACERS CARVE WITH SHORT SLALOM SKIS.

CALM UPPER BODY.

In photos 1- 4 Bakke keeps her upper body bent forward slightly while the shoulders are kept rather horizontal. The legs move from one side of her body to other. The upper body is almost motionless.

LESS UP UNWEIGHTING.

On moderate slopes there is less vertical extension of the hip (from extending the legs) as opposed to the classical technique used with longer slalom skis just two years ago. The hips/pelvis are kept about the same distance from the slope throughout the photos. The pressure distribution is therefore more even between the ski edge and the snow.

FORWARD BODY POSITION

A forward body position entering the turn is of utmost importance. Bakke's forward body position makes the outside ski's front half bend more than the tail. This forward pressure will lead the ski into quick and tight radius carves. This forward body position exerts great pressure on the tibia against the tongue of the boot, which in turn bends the front of the ski. The skier must be able to bend the ankle in the ski boot. However, at a certain point the ski boot must stop bending forward. It is at this time maximum pressure is transferred to the front of the ski. Her pelvis is forward and noticeably ahead of her outside foot. To acquire a forward position the racer must hold the inside foot back. Both tibias are bent forward to almost the same degree.

PIVOTING THE SKI.

In photos 2-3 we can see how she pivots the skis which aligns them for the upcoming turn. If the skis were not pivoted it would not be possible to carve the next turn. Slalom gates that are offset on a steep slope require a greater amount of pivoting.



FORWARD BODY POSITION BY RETRACTION OF THE OUT SIDE SKI.

Bakke is repeating the same movements except that she retracts her outside ski. There are two common methods to attain a forward body position at the start of the turn. The racer can either extend the leg which means that the outside leg is bent very little at the knee. (See extension of Mateo Nana in the following photo sequence). Or a second method which is very effective when the gates are close together giving the racer little time to extend, is to pull the outside foot back. Notice that in photo 5 Bakke's right knee and foot are ahead of her hip. In photo 7 (the last photo) her right foot is now behind her hip. Top racers have developed the ability to either push the ski forward at the end of the turn or pull it back as seen here. The benefit of this action is to produce pressure on the front of the ski by quickly (in 2-3/10's of a second) getting a forward body position with relatively little muscular effort. When the fore and aft body position is ideal the skier can carve turns in a relaxed way. When it is not, the skis must be forced around causing undesirable body stiffness loss of rhythm and decreased ability to absorb changes in the terrain.

MATEO NANA, ITALY



World Cup, Beaver Creek. Colorado, USA, Nov. 1999. Third Place.

On this extremely icy slope Nana is unweighting his skis by extending and raising his hips. In photo 3 he is rather extended in the legs as the pelvis is at its highest position. Because the gates are a great distance apart there is time to extend into this relaxed position. It is also easy to advance the upper body forward relative to the feet at the beginning of the turn from the extended position he has in photo 3. In photo 1 he is in a forward well-balanced position.



In the last photo, Matteo is gaining speed by directing his right ski in a line as close to the fall line as he possibly can. This separation of the feet compared to the narrow stance in the middle photo is very important in retaining maximum speed and balance. It does not occur in every turn. The ski pole is planted at the end of the turn with little motion of the arms. In the first two photos his shoulders are placed horizontally which allows him to edge the skis with hip angulation. Hip angulation is a combination of two positions. The chest must be flexed forward and the torso should face the fall line even as the skis turn away from the fall line. We can observe this in photo 1 and 2.



When the skier separates his or her feet it is necessary to transfer all weight to the new outside ski (skier's left ski in photo 1). In photo 3 there is no pressure on the uphill ski. If he had started the turn on his inside ski (his right ski) he would have lost the time gained by separating the feet. The most common error is that the separation of the feet is too extreme which prevents the racer from transferring the pressure from one outside ski to the next outside ski. In photo 3 and 4 the knee of his left leg is very extended. This position gives Matteo considerable leg strength.

FABRIZIO TESCARI, ITALY



Heading into a steep pitch Tescari's forward position makes his skis bend from the tip to the tail (photo 3). For the skier to advance forward it is essential to hold the inside foot back. Notice that his left foot is leading well ahead of his right foot (downhill foot) in photo 4.

The angle of his two lower legs (tibias) is clearly different while in photos 2 and 3 the tibias have almost parallel angles. To acquire a forward body position correctly positioning the uphill foot is very important. If Tescari had started his turn with his uphill foot positioned ahead of the downhill foot, as demonstrated in photo 4, it would have been difficult to generate pressure on the front of the downhill ski. At the start of the turn, the combination of the uphill foot far ahead of the downhill foot and pressure on the uphill ski will stop the skier from getting a forward position.

*Olle LARSSON
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