

The Power V-2: Latest changes to the V-2 as World Cup skiers use this stroke to tackle steeper and steeper hills.

by Lee Borowski

*For those of you unfamiliar with skating terminology, the V-2 is the skating variation where poling occurs with every skate-off. Whereas the V-1 features poling on every other skate-off.*

Ah the V-2! Back in the 80s, many experts were predicting that soon all the elite skiers would be abandoning the V-1 completely, even on the steepest hills.

Well that obviously hasn't happened, but each year more World Cup skiers are using the V-2 on slightly steeper hills. And along the way the technique has evolved to adapt to the different demands of these steeper climbs.

First, to avoid stalling out, the stroke has shortened and the poling has been modified. But wait, I'm getting ahead of myself. Let's back up a little and take a closer look at mastering the basic V-2 for all conditions, then get back to the newest ways to fly up those tougher hills.

## THE BASIC V-2

Ironically, the V-2 has the simplest technique to master. Yet it is also the most difficult for most skiers. Why the apparent contradiction?

The key word is balance. The poles are used to help balance during the V-1 as two poles and one ski hit the ground at the same time. These three points form a triangle of support which ensures stability on every other skate.

However, in the V-2, there is always a free glide phase before the poles are planted. At this time the skier is perched on each ski until the pole tips touch the snow. This is the reason why, for most people, the V-2 is the most difficult stroke to master. Balance is extremely critical.

Yet, once balance is mastered, the technique of the V-2 becomes almost automatic. The reason is that the mechanics are very simple and very natural for most skiers. Poling is much like the simple double pole and with complete weight transfer, skate-off becomes a reflex action.

That's why I've seen very few skiers with poor V-2 technique, IF THEY TRANSFERRED THEIR WEIGHT COMPLETELY. That certainly isn't the case for the

## V-1.

At first this may seem strange since balance is easier for the V-1, as the poles can be used as crutches. But that is the very reason some never master this stroke. You can feel comfortable without complete weight transfer, because the poles are planted right away and these crutches make you comfortable.

You can “get by” with a V-1 that is a little off, but not with the V-2. Without “perfect” dynamic balance the stroke feels very awkward. So the skier knows instinctively that something isn’t right and keeps striving, even subconsciously, for better balance because it’s much more comfortable.

So the first step to mastering the V-2 is complete weight transfer. The key is learning to rock the whole body from side to side. Alternate between skating without poles and with them. Rock in rhythm from side-to-side, allowing the off foot to freely swing under the body.

You may be surprised, but for most skiers, it is more difficult to skate this way while poling (doing the actual V-2). So interspersing skating without poles is a good way to feel the comfortable balance of complete weight transfer.

It's also easier to master this stroke on a slight uphill where the glide phase is not as long. Then as you get more accomplished move to the flats and even the downhills.

When you can skate off at any time of your choosing, not when you're falling off the glide ski, you're ready to master the nuances of the V-2.

## FAST CONDITIONS

The V-2 is extremely versatile and can be used in a range of conditions, from fast snow to moderate hills. But the technique must change to match the terrain.

The most obvious adaptation is that, in fast conditions, the skis face more forward and glide is longer. Here the skater will naturally fall more into the knees-nose-toes alignment and the off leg will swing completely under the body, feet almost touching.

It helps immensely to imagine that your body is a giant pendulum, gently rocking from side to side. In fact, once mastered, the V-2 on fast snow becomes a very relaxing stroke. Some elite skiers can race an entire marathon, on a flat course,

using no other stroke.

## STEEPER HILLS

But when the hill steepens, changes must be made. Since there is a free glide phase on both skis, stall-out must be avoided at all costs, or the advantage of poling on both sides will be lost to stop-start motion and the loss of momentum. And as every high school physics student knows, stop-start motion requires a lot more energy than continuous speed. Just remember that, unless you are aided by gravity, gliding without poling always means slowing down due to friction with the snow.

So on the steepest uphill stall-out would seem inevitable. Therefore the key lies in how to minimize it? Since glide has decreased, we shorten the stride and increase the tempo of poling. That means the poles should be planted in the snow as quickly as possible, as soon as the hands are forward. And a shorter stride means that there is no longer time to swing the off leg completely under the body, so the feet stay further apart.

But here is the added adaptation the best in the world are using: For example, when skating from the left ski to the right, the left hand is slightly further forward than the right, 4 to 6 inches or so.

This encourages a quicker weight transfer to the right ski as the poles are already heading in that direction. So a quick pole plant, with the hand over the skating ski several inches in front of the other, helps the skier quickly transfer weight and avoid stall-out.

But steeper hills also require more poling power, along with a faster turnover. So, there is one other trick that the elite skier has developed to achieve both goals. The poling motion becomes a stomach crunch accompanied by driving the elbows to the hips, the arms never fully straightened.

This activates the two strongest sets of muscles used in poling, the abs and the lats. And never fully straightening the arms de-emphasizes the weaker triceps, since the arm does not extend fully on steeper hills. This shorter "stomach crunch" stroke also allows for quicker turnover and no "stalling out."

If you have to, check this out in slow motion sequences of World Cup skiers V-2ing the steeper hills. Some skiers I know have been fooled into thinking it's only a triceps stroke, but the slow motion camera will show the truth. Just look at the elbow joint. If it stays bent as the elbows are driven to the hips, the triceps have been de-

emphasized.

Hope this helps your skating. Of course when the hill gets too steep there's always the V-1, and for mere mortals, the flying (or even walking) herringbone.