

# Trip the wand fantastic

ITALIAN STUDY ILLUSTRATES THE BENEFIT OF A MORE EFFICIENT START



Hermann Maier is considered one of the best at getting out of the start.

"THE FASTER YOU START, THE SOONER YOU GET TO THE BOTTOM," SEEMS A REASONABLE STATEMENT.

However, there may not be agreement or well-documented evidence as to what makes a start fast. I recently contemplated a research paper written by members of the Italian Federation of Winter Sports. Because it was published in the abstracts of the 2nd International Congress on Skiing and Science, held January 2000 in St. Christoph am Arlberg, Austria, I assume the data was collected sometime in the late 1990s.

The purpose of the study was "to evaluate the relationship between the characteristics of force production at the push-off and the time and velocity performance in the 50.5m subsequent to the start." In plainer text, in the start gate of a downhill, they wanted to determine if how hard and long a racer poled out


of the start gate affected their overall start speed. Time data for several points between the start and 50.5 meters was collected, but only the first 2.5 meters and 50.5 meters was reported. Force was measured and time were started by force platforms, placed in the start area under the racers' pole tips. When pole tip pressure was increased to begin the push, the timer was started, measuring elapsed time at points along the first 50.5 meters, including the point at which the racer actually tripped the wand.

Personally, my expectation was "of course it does," but the results were not exactly what I expected. Generally, subjects that developed the most force on their poles had the shortest time between when they start-

ed poling and when they opened the wand. Basically, the force of their push got them to the wand quickest. Unfortunately, their upper-body strength didn't generate as much actual down-the-course speed as other racers obtained. The racers that developed less force on their poles, and spent more time leaning on them, opened the wand later, and less time elapsed from the time they hit the wand until they traveled the first 2.5 meters. In essence, they were actually faster onto the first few feet of the course.

The authors don't actually discuss body position in the paper, so we are left to imagine what each racer's actual start technique looked like. What I came up with is this: The racers that developed the most pole force started explosively by poling and skating hard out of the gate and through the wand. The racers that employed lower force, but

longer time on poles, probably used a higher kickstart and backward swing of their skis. This would increase time spent on poles and also delay their time to the start wand. However, this technique developed more total speed down the course, which is why their time from hitting the wand to 2.5 meters was faster. The authors also reported that some of the time differential disappeared by the time racers had traveled the full 50.5 meters, and attributed this to numerous factors, including ski preparation, skating proficiency, conditions, etc. The authors' paper seems to show that jumping high and backwards with the feet, then swinging them rapidly through the wand generates the most speed.

It should be noted that start technique should vary depending on skill, the discipline, course set and specifics of the start ramp. 

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