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# UNITED STATES LUGE ASSOCIATION

## THE LUGE START



Member, United States Olympic Committee



U.S. Representative, Fédération Internationale de Luge de Course





# The Luge Start

Luge is one of the few Olympic sports timed to 1/1000 of a second; but even with the current state of high-tech, electronic timing systems, and the ability to time sleds to the millisecond, it is not uncommon to see luge races won or lost by .001 second or even tied after 3-4 cumulative minutes of racing.

With this in mind, it is very easy to see why the luge start may be considered the most critical part of the overall run. It is a very dynamic, explosive movement and is the only part of the run where the athlete has control over the acceleration of the sled. Once down into the racing position, the athlete must drive the optimal line down the track, but it is gravity that provides the speed. It is widely believed that a .01 second advantage at the start can multiply to a .03 second advantage at the finish.

## **Q: What are the different parts of the start?**

A: There are 6 basic phases to the luge start: the block, compression, pull, extension, push and paddle.

### **Block**

The block is the very beginning of the start motion. It is the action of rocking the sled forward. This is mainly a preparatory phase and “sets the rhythm” for the rest of the start motion. The block is characterized by the athlete sliding the sled forward and “opening up” their body by leaning the upper torso backwards.

### **Compression**

This begins when the forward motion of the block ends. When an athlete begins the backward movement of the compression, they should develop their speed with a smooth and natural acceleration, using the hips, rather than the arms, to push the sled backwards. Acceleration begins from a speed of zero when the sled is stopped at the end of the block, to a maximum speed of 5 just before the rearmost point of the compression. The sled should be led backwards with the hips and buttocks as the knees spread apart and the upper body “compresses” down between them.

The compression speed does not have to be extremely fast, but just fast enough to elicit a stretching effect from the muscles in the arms, shoulders and upper back. At the end of the compression, the sled should feel like it wants to “snap” forward from the stretching effect alone.

### **Pull**

The natural “bounce” effect from the compression initializes the beginning of the pull phase and the first part of the pull forward. It is characterized by the head, shoulders and torso lifting up out of the extreme compression position in between the knees.

### **Extension**

The extension phase begins after the sled has started its first movement forward. The primary movers in this phase are the upper and lower back and hip muscles. The back should remain as straight as possible during this phase and the shoulders should not hunch or “round” down. The legs should extend slightly in order to “lock” the athlete into the sled and to have a solid location from which to drive the sled forward.

### **Push**

The push phase begins at the point where the hips reach the start handles. The torso should remain in a 90-degree position as the athlete pushes against the start handles and the arms extend behind the athlete.

### **Paddles**

Paddles are performed using spikes attached to the glove on either the fingertips or knuckles (depending on athlete preference). The start motion should be fully completed before the paddles begin. During this phase, the abdominal muscles should be tight and the back straight as the athlete extends forward for the first paddle. The arms should be close to the sled with the head up, looking forward. Wrist, fingers and elbows must be solid and tight in order to transfer the energy into the ice. Generally, 3-4 paddles are performed depending on the start ramp.

## **Q: What kind of physical training should athletes do to help improve their start?**

A: Athletes wishing to improve their start times should not only focus on physical training, but should also work on their start technique, specifically, the position the body is in during the different phases

National Team athletes have a very structured program they use to help develop the muscles specific to the luge start. This program includes intensive upper body weight training (as well as lower body to maintain proper training balance), medicine ball drills/upper body plyometric training and sport specific exercises. Specific emphasis is placed on the “pulling” muscle groups as the start is a pulling motion itself.

Some of the specific lifts that are done in the weight room for the upper body include: lat pull downs, bench press, prone row, bicep curls, tricep extensions, cleans, dead lifts, upright row, dumbbell flies, dips and wrist curls and for the lower body: squats, leg extensions, leg curls and calf raises.

## **Q: How can athletes practice the start without going down the full length of the luge run?**

A: Athletes can practice their start technique at the indoor refrigerated track at the YORK International Luge Start Training Complex in Lake Placid. This is a 100 foot indoor luge track incorporating three different start heights which athletes use to practice their start technique. With this facility athletes are able to be on ice year round.

Athletes may also choose to make their own start ramp for practicing the start during the off season. This can be done very simply by fabricating start handles out of metal pipe and then attaching them to a piece of plywood. Wheels can then be attached to the sled in place of metal runners and you’re ready to “start”!

## **Q: Are the start ramps the same on all luge tracks?**

A: No, all start ramps are different, each has a different length, pitch and start light location which requires the athlete to be very versatile. Athletes must be able to adapt very quickly to the different “personalities” present in each track.

*Remember that the sled should be accelerating every moment that the athlete is in contact with the start handles, during the forward motion, or paddling down the ice. The maximum speed should be achieved at the moment the athlete settles in the sled for the run.*