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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.

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