

COMPLEX BIOMECHANICAL ANALYSIS OF BOBSLEIGH START

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The applied session gives insights into the analysis of bobsleigh start performance and the collaboration of the German Sport University Cologne, The German Bobsleigh Luge and Skeleton Federation and The Federal Institute of Sport Science in Germany.

The push start and acceleration phase in bobsleigh is a major factor in the determination of high bob velocities and therefore final race times (1, 2, 3). Analysis of bobsleigh starts at the Olympic Games in Calgary (2) and Lillehammer (3) clarified that start times and final race times are highly correlated ($0.6 < r < 0.86$, $p < 0.05$). For that, the leg extensor muscles have to produce high mechanical power output at the ankle, knee and hip to propel the athlete's body and the sled forward.

The set up includes up to 16 IR-Highspeed-Cameras and three force plates. For the analysis of the push start and acceleration phase, the bobsleigh is arranged on an 80 m-Rail-System in the track and field hall.

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[3] S. Smith, D. Kivi, H. Camus, R. Pickels, S. William, Kinematic analysis of the men bobsled push starts, in: *Proceedings of the ISBS*, Vol. 24, 2006, pp. 1–4