ANATOMY OF A DOWNHILL
The 2002 Winter Olympic Course at Snowbasin Utah

Safety Netting
Area of Interest
Racer’s Line
Racer Airborne

1ST TURN:
500 feet after the start, skiers take the first turn at 80 mph and a force of 6 G's.

Ski Magazine
www.slc2002.org
www.snowbasin.com

Vertical Drop--2890 feet
Total Length--9500 feet
Average Pitch--30°
Cost of Design--$4.8M
Top 35 qualifiers from 15 countries will race

J.C. Klena
2000 Rutgers Geography

PHYSICS OF DOWNHILL RACING

FLOWEN
MOMENTUM

VELOCITY

GEOGRAPHY

When racing, athletes are constantly battling the forces of gravity and momentum as a result of their speed down the hill. Gravity is a constant, but the faster speed racers achieve, the more momentum a racer has. This momentum is usually expressed as a G-Force or number of times the force of gravity and increases as a skier turns.

RACE SPEEDS (MPH)

<30 30-50 50-70 >80

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SOURCES:
1980 USGS Topo Quad
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AIRPLANE TURN:
The tightest turn on the course (90°) will put a force of 7 Gs on skiers. If you want to see a crash, sit here!

1ST TURN:
500 feet after the 60° start, skiers take the first turn at 80 mph and a force of 6 G's.

S-TURN:
A technical series of sweeping turns across the fall line with a turns in between will allow skiers with the tightest line to gain valuable time.

RUSSI JUMP:
The longest jump on the course is named after the course designer Bernard Russi and is a trademark of his challenging downhill creations. Racers will be in the air for over 100 feet. At 80 mph, skiers will cover this distance in roughly 1.5 seconds.

CORKSCREW SECTION:
Don't let slow speeds fool you. And of this will be lost here by inexperienced racers who do not set a good edge in the four hard turns.

FINISH FACE:
The final pitch of the course will also be the most painful - lactic acid building in the legs and speeds of 85 mph being airborne not only causes a skier to lose control but also precious speed.