

Making the Switch

The Essential Skill of
Advanced Snow Riding

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Skiing's Progression

- Walking, sliding
- Late 1800s
 - Schusses and traverses, linked by turns
- 1930s
 - Turns, linked by traverses
- 1960s
 - Linked turns, with no traverses

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Today

- Shaping phases linked with transitions

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Shape and Switch



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How People Learn to Ride

- Walking, sliding
- Straight runs
- Traverses
- Straight runs and traverses with turns
- Turns connected by traverses
- Linked turns
- Shaping and switching

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“Riding” Sports

- Skiing, alpine and tele
- Snowboarding
- Surfing
- Skateboarding
- Etc.

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What They Have in Common

- Standing and balancing on a moving platform, whose motion is always changing

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Mechanically Speaking...

- They're all *inverted pendulums*

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The Fundamental Skill of Riding

- Balancing on something that's moving, while that movement changes

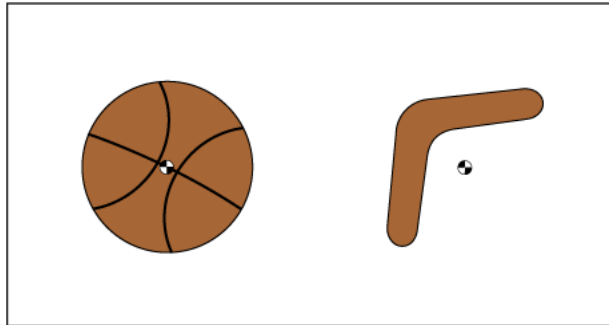
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What is “Balance”?

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Center of Mass

- The same as center of gravity



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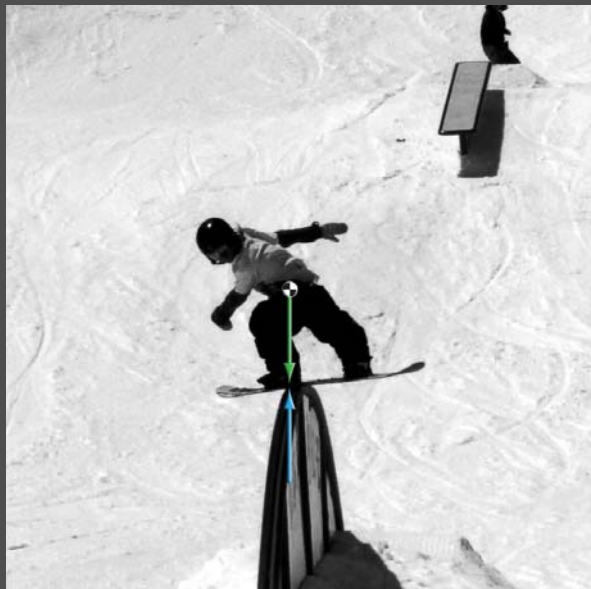


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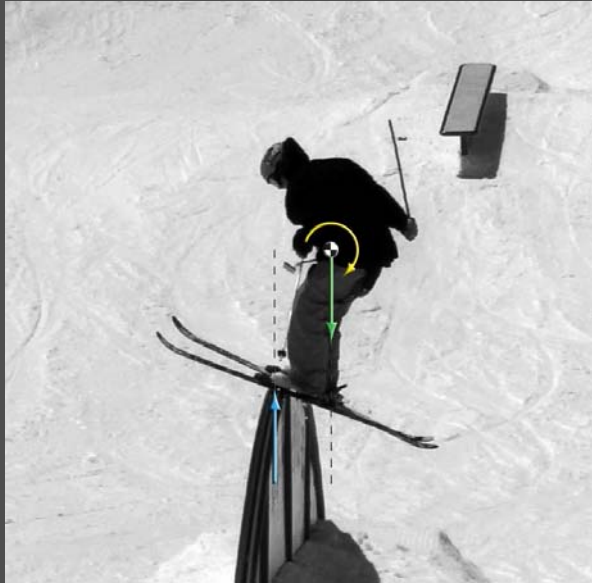
What is Balance?

- “You don’t fall over”
- The force of the snow pushing on you passes through your center of mass
- If it doesn’t, you *topple*

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Fundamental Skill of Riding

- Feeling the force from the snow acting on you: it's size and its *direction*
- Arranging your body so that force goes through your center of mass
- Anticipating how that force will change, especially it's *direction*

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The Key Skill of Advanced Riding

- Entering a turn in a narrow stance
- Linking turns
- Knowing when and how to topple

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What Makes You Turn?

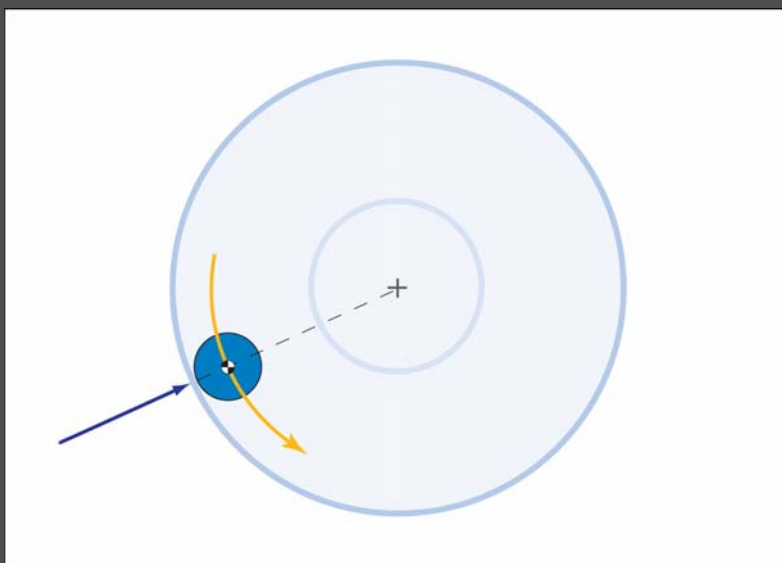
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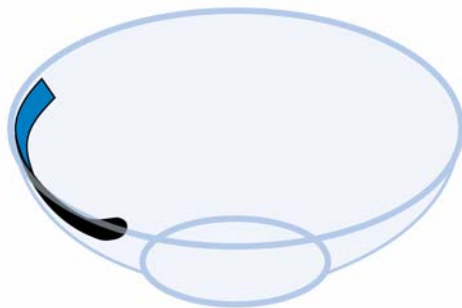
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Balancing in a Turn

- Center of mass has to be closer to the center of the turn than your base of support

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Starting a Turn in a Narrow Stance

- Like walking
- Like turning on a bicycle

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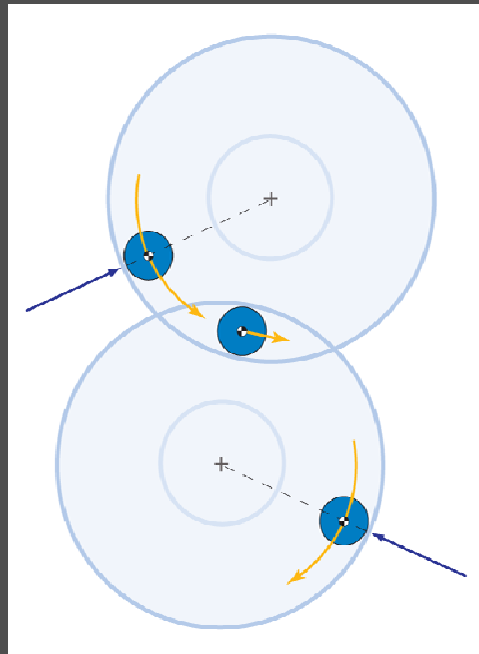


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Linking Turns

- The rider's CM and point of support must switch sides with each other

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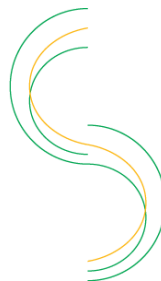


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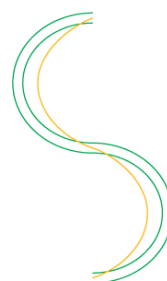
Progression of Lateral Balance Skills



Linked wedge turns



Linked stem christies



Linked parallel turns

— Path of center of gravity
— Path of feet

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The Key Skill in Advanced Riding

- Linking turns through deliberate toppling
- “Falling into the turn”

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The Estimation Problem

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The Estimation Problem

- Before you begin the transition, you must estimate
 - Where exactly it will end
 - How much lateral (centrifugal) force you will experience
 - How fast to topple

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How to Do It

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How To Do It

- Make your feet slow down
- Remove the support of the downhill foot (alpine and tele skiing, only)
- Make your feet turn more sharply
- Make your upper body go straighter

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Make the Feet Slow Down

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Make the Feet Slow Down

- Pre-turn
- Edgeset
- Downhill stem
- Small bumps and moguls
- “Cross over”?

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Remove Support of the Downhill Foot

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Make the Feet Turn More Sharply

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Make the Feet Turn More Sharply

- Angulation
- Tip pressure
- Terrain
- Turning out of the fall line
- “Cross-under”?

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Make the Upper Body Go Straight

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Make the Upper Body Go Straight

- Disengage the upper body from the feet
- Relax knee and hip extensors
- Contract hip flexors
- “Cross-under”?

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Pole Plant

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Pole Plant

- Provides lateral support during transition
- Enables skier to commit sufficiently

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“Project Your Body Down the Hill”

- Is this possible?

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Summary

- Snow riding involves balancing on a moving platform
- Advance snow riding involves knowing when and how to go out of balance in a controlled way
- Many techniques, and most are common to all snow riding sports

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Questions?

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