THE SEVEN MAGIC MOVEMENTS OF CROSS-COUNTRY SKIING

CLASSIC CROSS-COUNTRY SKI TECHNIQUE:
WORKSHOP FOR THE TSAŁTESHI TRAIL ASSOCIATION
February 1, 2007

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I. Basic Principles
   A. Three “T’s” of skiing
      1. Technology: wax, ski fit, ski tuning, track conditions, trail design
      2. Training: distance, strength, interval, stretching.
      3. Technique: skating and classic (this workshop)

   B. The rhythms of cross-country skiing
      1. Rhythm of the landscape: all good ski courses have a rhythm
      2. Rhythm of the skier’s movement
         a. When things go right the skier’s rhythm matches the rhythm of the landscape
      3. speed = glide length x tempo. Skiing is a continual adjustment of glide length and tempo matched to the terrain and the technique you use.

   C. The three primary classic techniques
      1. Diagonal stride: flats and uphills
      2. Double pole with kick: flats
      3. Double pole: flats and downhills
II. The Seven Magic Movements of Cross-Country Skiing

#1 Athletic Posture
1. Knees bent
2. Slight bend at the waist
3. Back slightly rounded forward, not arched back.
4. Eyes forward
5. Neck, jaw, and shoulders relaxed

![Athletic Posture](image)

Figure 1: Athletic Posture: knees bent, back slightly rounded, shoulders relaxed.

<table>
<thead>
<tr>
<th>Skill Element</th>
<th>Problem</th>
<th>The Fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>athletic posture</td>
<td>Stance too upright,</td>
<td>strength training (lower back and legs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>poles too tall: adjust pole length</td>
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</table>
#2 Forward Lean (hips forward)
1. Flex at the ankles, not the waist
   a. Phase one: forward lean initiates kick with momentary “free fall”
   b. Phase two: weight shift and glide with sliding foot slightly ahead of hips
2. The steeper the hill, the more you need to lean forward to adjust to the hill angle

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| Forward Lean  | Stance too upright| Poles too tall
Practice: 1. feet together,
2. lean forward bending at
the ankles, 3. step forward
to catch yourself |
#3 The Kick

A. hips slightly rotate as wax (or no-wax pattern) is planted
B. with a downward thrust and
C. opposite ski is driven down the track

Figure 3: Top: With wax planted with his left leg, skier will “drive” his right leg forward.
Left: Skier is driving her leg forward which then becomes her gliding ski.

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<tr>
<td>The kick</td>
<td>Late kick, kicking foot lands behind gliding foot</td>
<td>No-pole skiing</td>
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**# 4 The Glide**

1. Weight is **completely transferred** to the gliding ski
2. glide ski lands like an airplane on a runway touching the snow when feet are opposite one another.

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<td>weight shift, diagonal</td>
<td>Glide ski “slaps”</td>
<td>Lean forward, no-pole ski</td>
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#5 Compression (double poling)

1. bending at the waist to drive the poles backward and skier forward
2. In classic skiing
   a. Little to no compression in diagonal pole thrust
   b. full compression in double poling only

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<td>Compression</td>
<td>no compression</td>
<td>double pole</td>
</tr>
<tr>
<td>natural head/neck movement, double pole</td>
<td>Eyes look forward on full compression</td>
<td>Look at the ski label on full compression</td>
</tr>
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</table>
#6 Pole Plant
1. Arms bent at 60 degree angle or less (highly variable)
2. viewed from the side poles are planted with forward angle
3. viewed from the front poles are vertical or angled slightly to centerline
4. shoulders are parallel not hunched on the pole arm

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<td>pole plant</td>
<td>Arms too straight</td>
<td>Bend arm</td>
</tr>
<tr>
<td>pole plant</td>
<td>Pole shoulder hunched</td>
<td>Relax shoulders</td>
</tr>
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</table>

#7 Arm Swing
1. Arm swing establishes tempo
   - a. Flats: slower tempo, longer glide, more vertical posture
   - b. Hills: faster tempo, shorter glide, lower posture
2. Arms extend according to desired tempo, longer arm extension=slower tempo; shorter arm extension for faster tempo (up-hills)

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<td>Arm follow through</td>
<td>no follow through; arms collapse</td>
<td>Strength training; pole-only skiing</td>
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<tr>
<td>poles an extension of the arm</td>
<td>Poles “flop” or “fly”</td>
<td>Pole straps improperly adjusted</td>
</tr>
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III. *Elements of Uphill Technique*
   - A. The steeper the hill, the quicker the tempo
   - B. Shorten glide and arm swing
   - C. Drive lead foot uphill
   - D. Bend at the knees for more leg power
   - E. Bend at the ankles to create forward lean into the hill

IV. *Downhill Technique*
   - A. Tuck
     1. High tuck (slower) or low tuck (faster)
        a. To lower center of gravity
        b. Become more aerodynamic
        c. Bend legs to prepare for step turn
   - B. Step turn
     1. Low center of gravity, legs bent
     2. With weight on the outside ski,
     3. Swivel the inside ski and drive it in the direction you want to go pushing with the outside leg
     4. Then quickly bring the outside ski parallel to the inside ski
   - C. Step turn whenever possible, practice on gentle hills left and right
   - D. The snowplow turn is slow, unstable, becomes automatic, and causes the trail to deteriorate; use only when absolutely necessary.
   - E. Telemark turns tend to tear up the tracks and when the snow sets-up makes track-setting difficult for groomers.
   - F. Use a half-snowplow to control your speed on the straight part of the downhill and step turn the turn

Last: Don’t worry so much about technique that you forget to have fun.