

CSU and EMBK Skate Technique Progression Drills

Rob Bradlee
Jim Stock
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These notes define the terms and describe the drills used by the CSU coaching staff in training our junior athletes. We have pulled in ideas from many sources including our own inventions, but have tried to remain consistent with USST and NENSA coaching principles.

A. Without ski or poles

1. Stand in basic athletic position (BAP) (“keeper” position, tennis ready position):
 - Shin and back are parallel.
 - Pelvis should be tilted back
 - Ankles and knees bent
 - Shoulders relaxed and rounded.
 - Turn toes, knees, and hips outward.
2. Add forward lean from ankles with feet angled apart in skate position.
3. Rock in place (maintain connection through upper body, core, and legs – this should be a true rock, not step or lifting of feet), maintain BAP.
4. Step from side to side:
 - Keep pelvis steady as if it were a bowl holding water. It should not tip forward-and-back nor side-to-side.
 - Thrust the hip forward.
 - Maintain a “pelvic-tilt” with a constant stomach crunch.
 - Keep the hips at the same height above ground. No up and down motion.
 - Keep the body facing forward.
 - Push off to the side leaving leg fully extended
 - Keep a deep ankle bend on the weighted leg.
5. Jump from side to side.
 - Follow same directions as above for side-to-side stepping.
 - Keep the kicking leg extended to the side. Don’t let it come behind the weighted leg.
 - Don’t pull the un-weighted leg under the body when transferring the weight.
 - Skiers need to be able to master the transfer of weight from side to side with a good jump with no skis or poles. If they can’t do this drill then they will not ski

correctly. This is an easy place to correct flaws and a safe place (no fear of falling) to master correct BAP and movement.

6. Add in arm motion. **If** the skier has mastered the correct lower-body movement then you can add in arms. The arms should be held high in the “ready” position. The skier can do a short, quick downward pole motion as they kick off to jump to the other foot.

B. On Skis but Without Poles

7. Stand in basic athletic position (BAP) (“keeper” position, tennis ready position):
 - Shin and back are parallel.
 - Pelvis should be tilted back
 - Ankles and knees bent
 - Shoulders relaxed and rounded.
 - Turn toes, knees, and hips outward.
8. Add forward lean from ankles with skis angled apart in skate position. This should be like turning on a switch – as the weight shifts forward the skier starts to move forward.
9. Rock in place (maintain connection through upper body, core, and legs – this should be a true rock, not step or lifting of feet), maintain BAP.
10. Combine leaning forward from the ankles and the rock to prevent the skier from doing the splits and turns this forward motion into skate stride.
11. Practice “soccer kick” in place. This is a forward flick of the foot. Pretend you are kicking a soccer ball located at your toe down the length of the ski to the ski tip. Do not raise ski from snow – a forward flick of the foot. Practice with both feet
12. Combine maintaining forward position and connected rock, but add soccer kick. The soccer kick should feel like you are pushing yourself backwards, but in reality you are initiating a lateral kick while maintaining your edge. This should be done at extremely low energy levels, at low speeds. Forward motion is achieved solely through body weight and soccer kick.
 - Keep pelvis steady as if it were a bowl holding water. It should not tip forward-and-back nor side-to-side.
 - Thrust the hip forward.
 - Maintain a “pelvic-tilt” with a constant stomach crunch.
 - Keep the hips at the same height above ground. No up and down motion.

- Keep the body facing forward.
 - Push off to the side leaving leg fully extended
 - Keep a deep ankle bend on the weighted leg.
13. The basic no-poles drill. Work on core stability. A good way to do this is to put hands on rear upper hips and think about pushing your hips forward. Continue to do this at low tempos and low energy until this is mastered. Properly done, this is the core of proper skating technique. Our skiers should practice this every day for at least 5 minutes if they are skating, focusing on connected rock, forward position, soccer kick, and core stability (maintaining body in direction of motion, not rotating).
14. Advanced no-poles drill. Do the above but with your hands in front of your face, elbows bent, like a boxer in a defensive posture. Ski along easily with only a slight kick and a long glide.

Follow the Leader Drill

Competitive junior athletes, especially the boys, have a huge problem doing drills where they go slow and concentrate on good form and balance. Instead they race each other and immediately start thrashing like a bunch of hockey players fighting for the puck. So, we must harness their competitive spirit. Create small groups (3 or 4) of skiers of similar speed and ability. The leader tries to hold his or her glide as long as possible and the followers have to match the glide length. If you can out-balance the skier ahead or behind you then you “win”. Use a small loop and have the leader switch on each circle.

Boxer/Cheerleader Drill

Initiate the movement onto the gliding ski with a punching motion of both hands forward in the direction of travel. This drill is essential for training the correct timing of the V2. Don't swing the arms back, just let them come back to the starting position after each punch. This drill must be mastered for a proper V2.

Knee-pop Drill

The kick in skating (as in classic) needs to have a decisive downward pop of the knee. It's a subtle motion and should be trained separately. Doing it first without skis on will give the athletes the feel for it. Then they can do an easy skate concentrating on just this motion.

Fire Your Guns Drill

One of the hardest parts of skiing is keeping the hips driving forward instead of letting them float back and sticking out the butt. Using the motion of a Western gunslinger pulling out his six-gun and shooting a varmit is a good way to get the skier to tuck his or

her hips under her. First practice while standing still and check that everyone can get the motion down. Then, try it while moving and fire a gun as you step onto the ski.

Skate very easily without poles. Focus on:

- Deep ankle bend
- Steady balance
- Kicking forward – visualize skiing toward 12 on a clock face. Kick to 2 and 10 o'clock.
- Hips forward over the ski
- Upright and quiet upper body
- “Fire your guns” to keep the pelvis tucked

Stable Upper Body Drills

Skate carrying poles horizontally at shoulder height. Use the poles as a feedback mechanism to see that shoulders are not tilting side to side or upper body rotating. Poles should stay horizontal and perpendicular to the direction of travel.

Skate carrying poles vertically held in front of face. Hold the handles of the poles just below the belly button. Another test to see that the upper body is not tilting.

Skate without poles Drill

Use normal arm motion. V1 up hills, V2 on flats and gradual ups, and V2 Alternate on flats and gradual downs.

Locked and Loaded

The skier raises the hands up high assuming the position that he or she will have at the top of the V2 poling motion. (A good mnemonic is to say “Put your hat on”. The motion of pulling on a ski hat puts the hands and arms in the correct spot). Then, the position is locked. No arm movement is allowed. The skier falls forward onto the poles (the load part) and pulls himself forward using only the abs. I find that skiers tend to cheat and use their arms quite a bit. You have to really emphasize that the arms and shoulders are frozen in place. If done properly the athlete will really feel the abs, and especially the lower abs, pulling the hips under him.

Once the above is mastered, you can ask the athlete to add in a slight skate kick with each pole. This makes clear the simultaneous firing of the kick and the ab crunch with the poling motion. Have the athletes slowly increase the amount that they kick and add in full upper-body motion. Now they should be doing the V2, but with full engagement of the abdominals.

Hop Drill

In this drill the skier takes a hop and then as the ski lands does the pole motion and kick all together. This teaches the correct timing of simultaneous firing of all muscles in arms, torso, and legs for maximum speed.

Stratton Swing

For Advanced skiers: Once the skier has mastered the timing of the V2 he or she will be looking for ways to apply more power to the stride to gain more speed. Better skiers (e.g. students at SMS) open up their upper bodies with a rhythmic swinging motion as they ski. It's a difficult move and can easily make the skier put his or her butt backwards. Watch a World Cup Sprint video of Andy Newell to see it in action.

V1 Focused Drills

Hot Foot Drill

Start by standing in one place. Slide the feet one at a time along the ground in a quick motion like the ground is hot and you have to keep sliding your foot off the ground. The effect should be to make you do a very light slide on each foot. It's okay to move forward as you do it. This drill teaches the skier to feel the sensation of a gliding ski leaving the snow. During the full kick the skier should be pushing off a gliding ski and never leaving the ski "stuck in the mud". A mental image that works for some people is to think of trying to pop balloons by poking upward with the tip of each ski.

In a V position try sliding the skis forward. Using only forward motion kicks you should be able to move forward. It's a miracle!

Nina's Diagonal Stride Skate Drill

Skate without poles. Use your arms like in classic. When you step onto your left ski raise your right hand straight ahead with hand up to face height. Work on rhythm and glide. This is particularly effective for improving V1 because it gets the skier up and onto the ski instead of sitting back.

Ride the Glide Drill

To improve glide: On every third stride hold the glide position for a count of two.

Lee Borowski's "The Drill"

When doing a V1 try to make the poles land before the foot (versus at the same time). This will force a more powerful, deep stride. This is an important drill for good skiers who lack power in their stride.

V1 Saddle Drill

USST uses the analogy of sitting on horseback in a saddle to convey proper V1 position and weight transfer. Here's a drill they showed to Alex Jospe at a clinic:

Use four different ways of skating up a short hill (no poles):

- Click heels going up the hill (causes you to stall out)
- Take a big step up the hill (causes you to put the heel down first)
- Keep the feet really wide (getting better)
- Keep the feet wide but putting down the toe first

V1 on Both Sides

Competent skiers should be able to V1 with the poles landing on either side. Do easy repeats on a small hill with the poles landing first on the left for the whole repeat and then on the right for the whole repeat. If everyone masters this then have them switch halfway up.

Agility Drills

Figure 8 Drill

Place two cones (or other markers) 10 meters apart (conveniently this is 5 ski lengths when on snow). Have skiers do 3 full figure eights around the cones for time. Great for agility and control.

Frisbee Relay Drill

Create 2 person teams and have elimination sprint races where they skiers have to throw the Frisbee back and forth 3 or 4 times. This will develop total body awareness and the "swivel-head" necessary for surviving a tight sprint situation.

Drill Checklist

Drill	
BAP with no skis or poles	
Jump side to side with no skis or poles	
BAP with skis and forward pressure, no poles	
BAP, pressure, rock, no poles	
In place soccer kick	
Ski with no poles just rocking with soccer kick	
Same but with arms high	
Follow the leader	
Boxer/Cheerleader	
Knee-pop	
Fire your guns	
Stable upper body with poles as guides	
Skate without poles	
Locked and loaded	
Hop	
Stratton Swing	
Hot foot	
Nina's diagonal stride	
Ride the glide	
V1 Saddle	
V1 both sides	
Figure 8	
Frisbee relay	

Definition of Terms

V1: So named because you pole only to one side so the marks left in the snow show only one set of pole plants for every two ski marks (the “V”). Both poles and one foot are set down at the same time. Remember these keys:

- Push equally to both sides with the legs – there is no “strong” or “weak” side anymore
- Kick forward, not back
- Keep the skis sliding throughout the kick – don’t let the foot “die” in the snow
- Keep the body facing forward with the pelvis steady and tucked – no tilting or rotating
- Keep upper body upright. Compress just the top part of the torso like a stomach crunch when poling. Don’t drop or rotate the shoulders.

V2: Named because you pole on each kick leaving two pole-plant marks in the snow for every ski mark. Remember:

- Keep a steady ankle and knee bend – no up and down motion.
- The deeper the ankle bend then the easier you will balance and the more power you will have for your kick.
- Compress just the upper torso when poling
- Kick forward.
- Push the hip forward over the ski for maximum glide
- “Fire your guns” to keep the pelvis tucked and driving forward
- Upward motion of the poles must be *quick!*

V2 Alternate: So named because we use the motion of the V2 in the legs, but only pole to one side. Initiate the technique by a large arm swing and a commitment to gliding on one ski. Remember:

- Again, the ankle bend is the key to balance and a long glide
- Kicking forward is hard, but key to maintaining momentum
- Keep hips square to the direction of travel