

## The Five Movements in Skate Skiing, with Selected Drills.

*Adapted from presentations by Bruce Manske, CXC coach, by Jim Bennett, RNST coach. November 2018.*

1. Fundamental body position (or “Home” by RNST)
  - a. Feet about shoulder width, then take one half step sideways to open into slight “v”.  
(Note: for classic skiing it is the same except for the half step and “v”)
  - b. Supple ankles and knees
  - c. Weight on balls of feet (Note, according to BM, a skier's weight is ALWAYS on the balls of the feet, except perhaps momentarily when pushing off the ski laterally.)
  - d. Hips forward (happens when ankles are bent), neutral position.
  - e. Relaxed shoulders, slightly rolled forward, arms to the side.
  - f. Relaxed neck looking slightly down and forward
  - g. Drills for body position:
    - i. Get into fundamental body position and make sure everyone is on balls of feet.
    - ii. Lean forward by flexing ankles (drive knees forward) until you have to step forward to prevent falling. Explain that this is how one uses gravity to move forward on skis. Can also partner up and have one skier catch another when falling. This same drill can be used on skis; when the skis move forward and the “v” gets too large skiers began moving laterally from ski to ski – and for beginners, skate skiing without even knowing it.
    - iii. Find a step or box. Ask skiers to try to step on it with one leg, and pull their bodies up keeping the ankle locked in a 90 degree angle without flexing. This is very hard to do without jumping off the other leg. Then have them repeat with a flexed ankle, and knee forward. (This works because the muscles in the leg are now “loaded”.)
    - iv. Broad jumps (“frog jumps”) from BALLS of FEET. Land on balls of feet, notice tendency for body to fall forward on landing. Can do this on skis without poles, even up a hill. Try a short race up a slight incline.
    - v. Variation: Stand on heels, jump up, with arm swing, land on heels. Note that the skier does not move forward. Now get in Home position (BALLS of FEET) and jump up, notice body moves forward. Jumping from balls of feet can be called “jumping quietly” while using heels is “jumping loud”.
    - vi. Have skiers stand in fundamental body position, then position a vertical pole directly behind them. The butt should not protrude behind the pole. The secret here is the flex in the ankle – which will cause a slight flex in the knees, and movement of the hips forward. Reminding them that weight needs to be on the BALLS of FEET at all times helps.
2. Core compression of upper torso
  - a. Imagine a string from your chin to your belt buckle. Shorten the string slightly to crunch (by compressing core on the front, not by bending the neck down.) May also “suck in” belly button. Stress that crunch is not from the waist. While an open “c” is formed by the crunch, it is subtle, and the action is better thought of as a compression rather than a crunch.

- b. Compression, combined with arm swing and pole extension creates a “ski small” position, in contrast to when the arms are swung forward and up (with an unloading of the compressed core) to create a “ski tall” position.
  - c. Drills for core compression:
    - i. Put tennis ball under chin and compress core keeping ball in place
    - ii. Locked and Loaded: With or without poles, lock elbows in 90 degree position, can even have skiers put elbows against their sides and hold there. Now crunch, like a robot, or a rusty Tin Man. If on skis, have skiers travel down the trail this way – no arm movements, just crunches.
    - iii. Can have skiers lie on their backs and do a few crunches to reinforce the correct feeling. However, note that the “crunch” is a more subtle compression of the core muscles that does not include crunching the head significantly forward and down as in a crunch from a position on the back.
3. Pendulum arm swing
- a. Movement is from the shoulder, not the elbows, both arms together
  - b. Pendulum starts with a 90 degree bend between the upper and lower arms, as pendulum swings, elbows open up.
  - c. As the arms come forward in the pendulum, they must point straight forward (and up), down the trail – not to one side, or tipped inward in front of the face, or out to the side; the goal of skiing is to move forward down the trail. Slight exception is trailing pole in V1, but it still follows the same basic motions. (Think of speaking into a microphone when at high position.) Watch arm movement in front of skiers to see where hands or poles are pointing.
  - d. When the arms come up they should come up to a position where the forearms are nearly perpendicular to the ground. This is the “power triangle”, and the high point in the pendulum, or the “Ski Tall” position. However, remember (c) to keep the arms and hands positioned in such a way to point straight and forward. In this high position, the angle between the body and the humerus should be close to 90 degrees; this is often described as an “open” angle.
  - e. A corollary to proper forward/back pendulum arm swings is that the upper body does not twist at the shoulders, and only really twists at all during the V1, where there may be a slight twist at the waist, but not at the shoulders. While it is easy to maintain this position while double poling, skiers often have trouble during skating. Explain that the arm swing is the same – no twisting of upper body – during skating as double poling.
  - f. Drills:
    - i. Starting from Home position (BALLS of FEET!), swing both arms vigorously from shoulders for several reps.
    - ii. Ski tall/ski small: Combine core compression with arm swing to alternate between the ski tall and ski small positions. May choose to have kids vocalize “Ski Tall” “Ski Small” when performing.
    - iii. Bathroom scale drill: Have one skier hold arms straight out and forward. Have another skier use their arms to push the first skier’s arms down. Now repeat with arms of first skier bent 90 degrees. It is much harder to push the arms down from this position. Variation: first skier holds arms straight out, palms up,

second skier holds arms straight out, palms down, and pushes first skier's arms down while first skier resists. Now have second skier use bent arms to push down using their elbows instead of open palms.

- iv. Broad jumps as above, stressing pendulum arm swing.
- v. On skis have skiers double pole at different tempos. Can vary terrain as well.

#### 4. Lateral weight shift

- a. Shift occurs at the hips. This is the center of gravity. Upper body stays vertical, and more or less locked in position. Think of a "vertical zipper" on a jacket. No tipping or side crunching. There is a slight hop as one shifts from side to side.
- b. Note: There is no rearward motion of legs; nor is there any stepping. Beginners often want to push back or to step like squashing bugs. Not allowed!
- c. Drills:
  - i. Starting from Home position (remember to take one half step into a slight "v") put hands over hip sockets, or on butt cheeks. Move from side to side, maintaining a vertical zipper. Try to just do lateral motion, no tipping, may help to have hands help push hips from side to side.
  - ii. Repeat "i" but now put a small hop at the end of the lateral push. Do this multiple times, but remember basic body position, especially BALLS of FEET.

#### 5. Extension and release

- a. Extension occurs at the arms and legs, although lack of or minimal arm extension may more often be a problem.
- b. For arm extension, skiers MUST let go of the pole grips. This is the "release".
- c. Extension allows venous blood flow back toward the heart. One reason kids get cold fingers is because they do not let go of their poles and open their hands. Letting go also allows muscles to rest and recover to get ready for the next power phase.
- d. Extension of arms may stop at waist, e.g., in V1 on hill, or at full arm length behind as in V2 alternate on the flats, but either way the hands will open up.
- e. Drills
  - i. Starting from Home position (BALLS of FEET) double pole as above but open hands at the end of the stroke.
  - ii. For leg extension, can add slight kick by tip of toes at the end of the jump- like kicking a soccer ball with very tip of toes.

#### 6. Synchronizing the Fundamental Movements

- a. As you work through the drills above, progressively add each of five movements as you teach them. You do not have to follow the order above. For example you could start in the Home position, add side to side lateral motion, then with a hop, and then add a crunch. Next add the pendulum arm swing. When you get to the end, skiers should be doing all five (4 + Home position) together. (You may want to practice yourself before trying to demonstrate, because it is not necessarily as easy as it sounds.)
- b. Remember that the head moves with the crunch, slightly up and down, always looking forward, not down at the skis. It does not remain stationary, separated from the crunch, nor wildly bob up and down; nor does it go side to side looking off into the woods. The body goes where the head is looking toward, i.e. forward. When skiers try

to put it all together the head is often forgotten, and one will see even quite accomplished skiers twisting or turning their head from side to side.

7. Bruce Manske said he often uses this progression at the beginning of practice, even with elite skiers, as a warm up and as a way to reinforce the importance of proper body position and movements.