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SKI CONDITIONING FOR THE WATER BY C. D. HOLCOMB

As our population gets older, traditional ski training methods have become more of a hazard than a help. In traditional training, plyometrics, squats, lunges, jump lunges, and jump moguls were used as training primarily for younger skiers who preferred moguls, backcountry, and expert level downhill skiing. As our population has aged, it is no longer advisable to train the recreational skier with these high impact techniques. We now need to make sure that our older recreational skiers can return to the slopes with appropriate off season training to allow them to:

- Have a level of muscular and cardiovascular endurance to allow them a full day of skiing without fatigue
- Have a level of balance and core conditioning to reduce the risk of falls and injury
- Have the appropriate muscle training to be able to ski in proper form without fatiguing shins (anterior tibialis), quads, low backs, neck, and hamstrings.

In order to properly prepare people for the slopes, we must analyze the sport and determine which exercises are needed.

Lower Body:

Conditioned quads, hamstrings, adductors, abductors, calves, anterior tibialis and muscles supporting the ankles are extremely important in skiing. In both downhill and cross-country skiing, the legs are in squat, lunge and angled squat/lunge positions through most of the run. Running and skating like movement are needed for uphill, flat traverses and “cat walks”. The muscles must be trained for held positions, rhythmic traversing, and quick reactions whether it is other skiers, icy runs, tree roots, bumps, or other unexpected changes.

Upper Body:

Triceps, neck, core and low back muscles need to be trained for poling, traverses, and the crouched position required on some runs.

CORE:

Balance, Reaction, Footing, Lift Entrances and Exits. Balance and reaction are the keys to safe skiing. Being able to stay “centered” no matter what you skis encounter and what distracts you is extremely important in preventing injuries.

Now that we know what we need to work, we can suggest exercise progressions and work to meet the needs we have just laid out. Each exercise has a progression of level of difficulty so our class can choose their level and does not try and exercise they are not ready for and end up hurting themselves or someone near them if they lose control of their equipment.

We have tried to pick exercises that use common equipment. There are a lot of exercises you can use that require equipment that is not readily available in most pools. Once you understand the basics, you can create your own progression with what is available at your facility.

Mogul Progression

Mogul Jumps - Feet and Knees together. Jumping up and over to the side pushing down and across into the water with the hands.

- a. Next level is to travel forward going side to side over a lane line.
- c. Next level is to tuck up higher in the jump.
- d. Next level is if a step is available, stand along side of the step with the feet parallel to the step. Jump sideways up to the top. Then jump over to the other side. Jump back to the top and over.
- e. Next level is to jump if a step is available, stand along side of the step with the feet parallel to the step. Jump sideways over the top to the other side. Jump back over the top and over.
- f. Next level is to have the hands out of the water and jump up using only the legs and core.

One Legged Tucks – One knee is held up in the water with the thigh parallel to the floor. The leg that is on the floor pushes you off the floor and comes up quickly into a tuck next to the held leg, but must return to the floor and repeat.

- a. Next level is to have the hands out of the water and jump up using only the legs and core.

Running Progression

High knee Run – Running with knees coming up high in the water.

Tuck Jumps – Feet and Knees together. Jumping straight up pushing down into the water with the hands.

- a. Next level is to have the hands out of the water and jump up using only the legs and core.

Alternating heel backs – Running with the knees pointing straight down to the ground and the heels coming up behind toward the butt.

Single Heel back – Hopping on one foot, the other knee points straight down to the ground and the heel coming up behind toward the butt.

One Heel Up Jumps - One heel is held up in the water with the knee pointing straight down to the floor. The leg that is on the floor pushes you off the floor and comes up quickly with the heel back and the knee pointing down to the floor until it is next to the

held leg, but must return to the floor and repeat. Watch back alignment. Don't arch the lower back.

Both Heels Back – Both knees pointing straight down to the ground and both heels coming up behind toward the butt at the same time.

a. Next level is to have the hands out of the water and jump up using only the legs and core.

Cross Country Noodle Progression

Starting in the shallow end.

Cross Country One Noodle – One long noodle is under the arch of the foot. The legs and arms perform a cross-country ski

a. Next level – Two noodles one under each foot.

b. Next level – Move to the deep end and perform suspended.

c. Next level is to have the hands out of the water and move using only the legs and core.

Core Noodle Progression

Straddling the Noodle Clamping it between you knees, but in a seated position.

Bicycling forward and backward – Activate the hamstrings more, alternating legs pulling harder and travel forward with a breast stroke arm movement traveling forward. Then activate the quadriceps more, alternating legs kicking out harder and travel backward with arms closing together in front traveling backward.

a. Next level is to have the hands out of the water and move using only the legs and core.

b. Next level is to use the legs together instead of alternating to travel forward and backward.

Core Kayaking

Straddling the Noodle Clamping it between you knees, but in a seated position. Use a kickboard as a paddle alternating rowing. Try to move forward in a straight line.

Core and Ankle Strengthening Kickboard Progression

Tucks in Shallow – Standing on the Kickboard in the shallow. Slowly tuck up allowing the kickboard to come off the bottom. Then push it back down.

Move chest deep water.

Tuck and turn - Standing on the Kickboard pull the knees up until you are suspended and then twist side to side.

Deep water

Ankle activation – Standing on the kickboard practice slowly flexing and extending the feet and doing a slow run where the board is kept under control.

Triceps Pushups on gutter

Facing the gutter, put both hands on gutter push yourself out of the water and then lower until your elbows are at 90-degree angels. Repeat

Next level if your shoulders are flexible. Facing away from the gutter, put both hands behind you on gutter and your feet on the wall. Push yourself out of the water and then lower until your elbows are at 90-degree angels. Repeat

Abs and Obliques on a Noodle

Abs - With the noodle behind you under your arms in a suspended position. Your legs are under you in a kneeling position (knees down to floor, bent at 90 degrees, and feet are behind you. Roll the knees into a tuck and slowly unroll back to kneeling. Keep the hops in one spot

a. Next level is with straight legs from a hanging vertically to a pike positions and back.

Obliques - With the noodle behind you under your arms in a suspended position. Your legs are under you with the soles of the feet together and the knees wide forming a diamond shape. You then rock side to side like ringing a bell.

a. Next level is with straight legs out in a V rocking side to side like a pendulum.

CEC ARTICLE TEST QUESTIONS VOL 3, 2002 Ski Conditioning in the Water

1. What were three traditional ski-training techniques?
2. Who were they for?
3. Why are they being replaced?
5. What are the three goals for ski training?
6. What lower body muscles need to be trained?

7. What upper body muscles need to be trained?

8. Why is balance and core training needed?

9. Name 3 progressions/exercises, which work the CORE?

10. Name 3 progressions/exercises, which work on reaction and balance?

11. Why do we need progressions for each exercise?

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