# Skating Practice { On-ice / Off-ice

## ***Kinesthetic feelings when skating***

- ***Quick feet during acceleration,***
- ***Slower, but powerful strides at high speed,***
- ***Massive one-legged force to the side,***
- ***Abduction-Rotation-eXtension (ARX),***
- ***Straight-Line-eXtension (SLX) at push-off,***
- ***Arms+Core multiply lower-body force.***

***M**ichael Crowe, is the brilliant speed-skating coach, who has developed hundreds of young Canadian and American skaters. At an international junior meet, I asked him if he would ever consider trying to teach skating without dryland training. He looked at me quickly to see if I was joking – or crazy – then replied,*

***"How could you do that?"***

***He continued: "The <u>Kinesthetic feelings</u> in skating – especially the feeling of applying force from one leg, through the center of the body – must be repeated over and over in dryland training."***



# *How are kinesthetic feelings unique for skating?*

## *Why should hockey players train differently?*

***Sprinters thrust straight back (extension); Skaters thrust to the side (abduction).***

***Forward skating strides are Abduction-Rotation-eXtension from the hips (ARX).***

***All forces are from one leg, with greater knee bend than most sports.***

***One-legged force must pass through the center of mass – learned off-ice.***

***Emphasize quick feet (like sprinting) during acceleration, but ,unlike sprinting, when you attain higher speeds, don't rush each stride, but feel great force to the side.***

***Sprinters reduce contact time with the ground at high speed; skaters do not; so, plyometrics are different. Skaters emphasize knee bend for all jumps. Sprinters emphasize brief contact time. They call their jumps "plyometrics," so let's just call ours "skating jumps."***

***Short acceleration sprints uphill can be modified to make them more specific to skating in the first steps (ARX). Simply face to the side at the start; don't cross over but rotate and explode with a long first step. Then, do not restrict the arms from crossing the body, and uphill sprints will usually increase hip abduction naturally.***

***Start with posture and knee bend at the youngest ages.***







***Beginners run on their skates until they learn knee bend in this position.***

***Repeat this position thousands of times off-ice, beginning in the first year of skating.***



***Posture is an essential skating base.***
***There is no speed improvement without it.***

***A solid postural base is needed to skate backwards powerfully, and with agility to move laterally.***

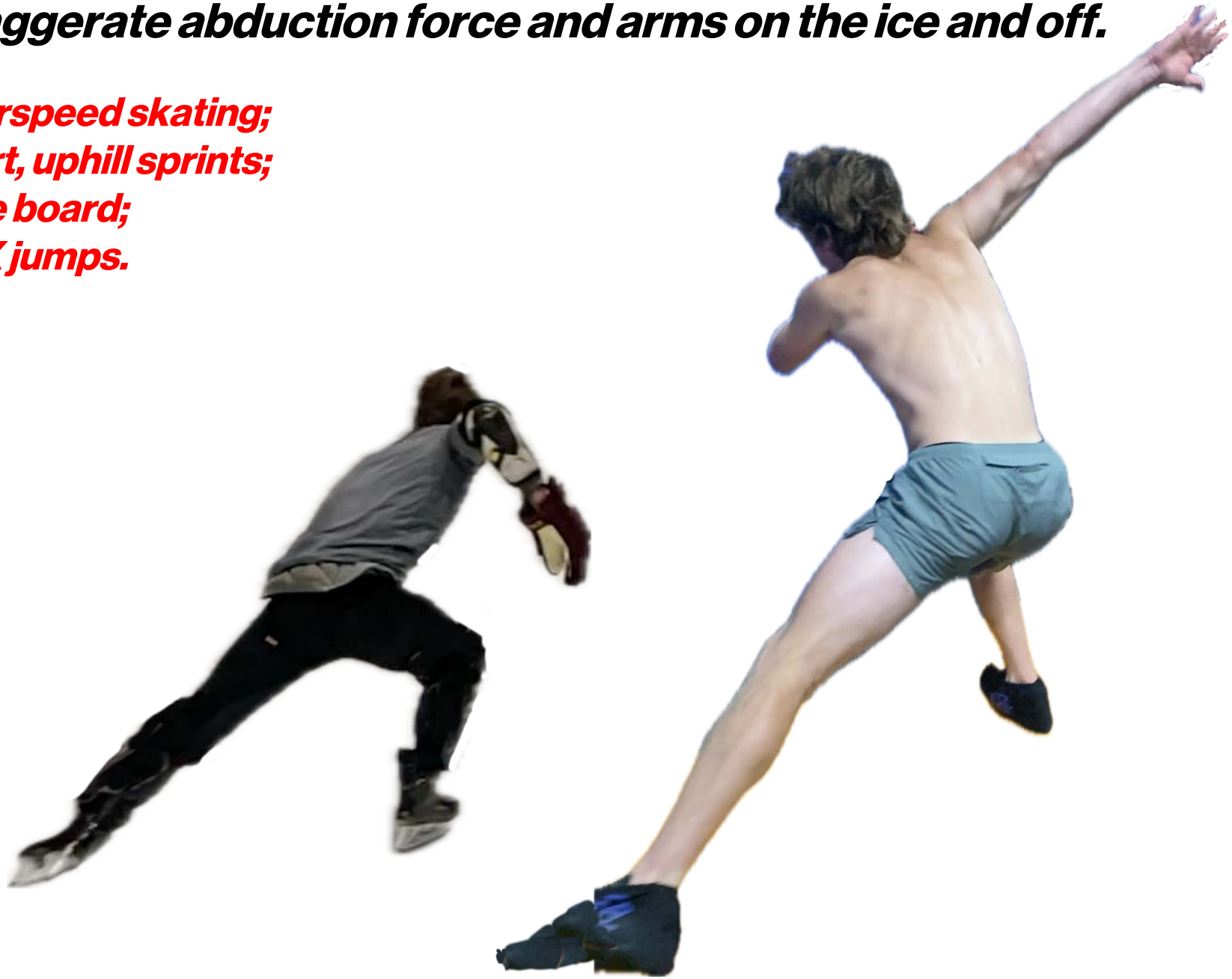
***Squats are a great exercise to improve postural stability***

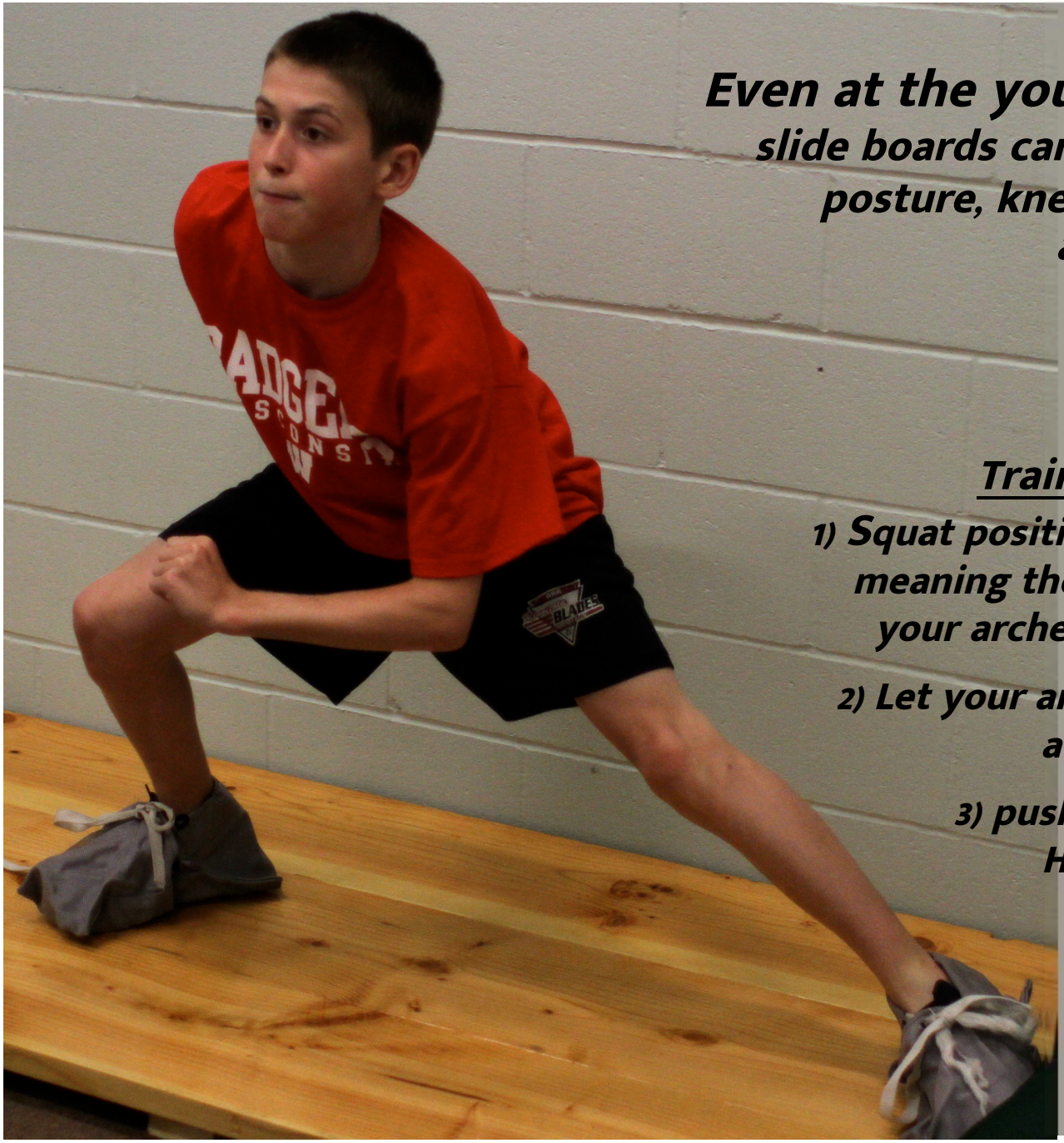


*NHL'er Andrew Alberts uses excellent postural stability during Overspeed backwards agility drills*

***The fastest, most efficient skaters with and without pucks, exaggerate abduction force and arms on the ice and off.***

***Overspeed skating;***
***short, uphill sprints;***
***slide board;***
***ARX jumps.***





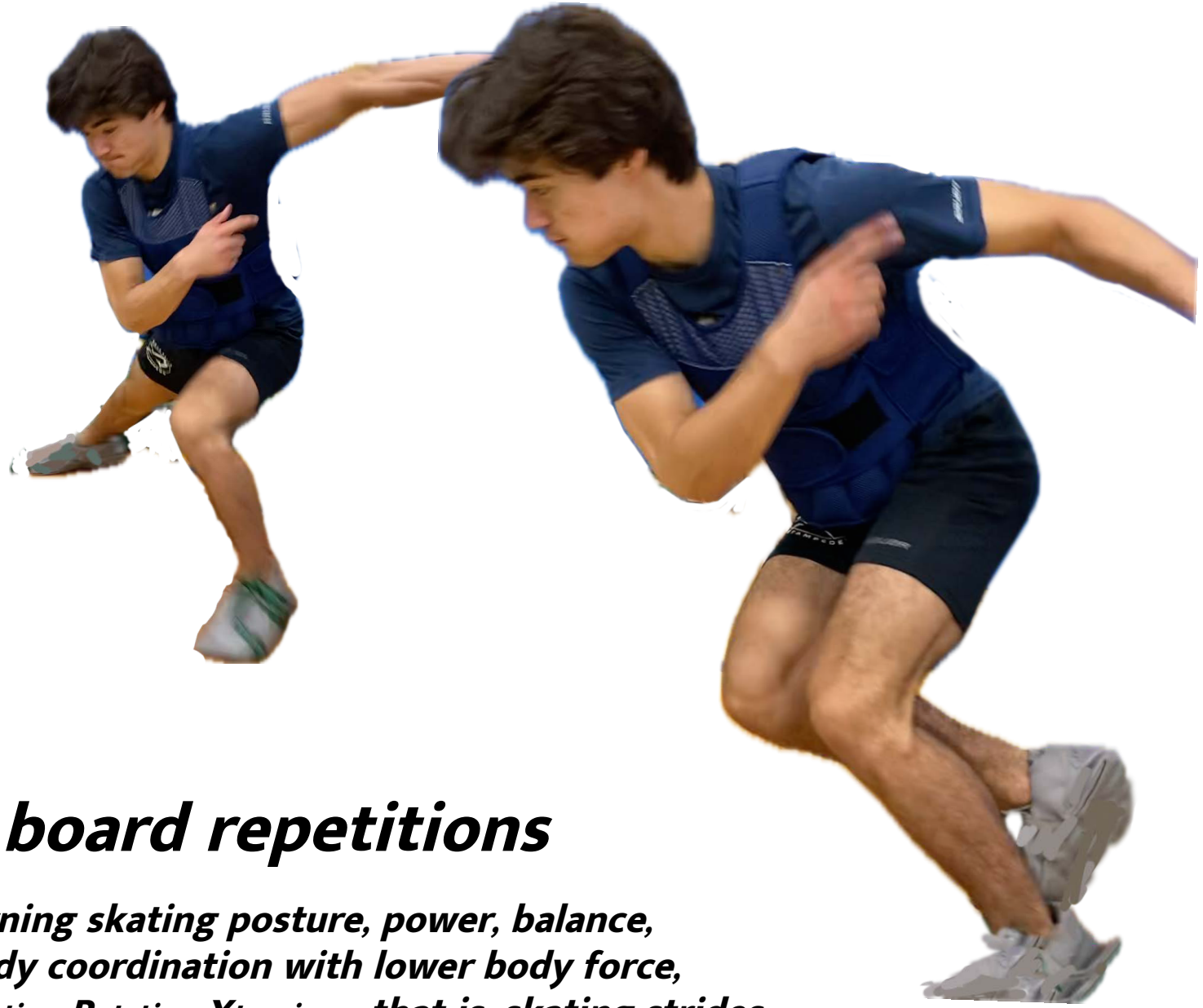
***Even at the youngest ages,***
***slide boards can teach skating posture, knee bend, power, and endurance.***

***Training thoughts:***

***1) Squat position on each end, meaning the weight is over your arches not your toes.***

***2) Let your arms swing freely across your body.***

***3) push off powerfully. Hit the far end as hard as you can.***



# *Slide board repetitions*

***… for learning skating posture, power, balance,***
***upper body coordination with lower body force,***
***and Abduction, Rotation, Xtension – that is, skating strides***



***Later, when good knee bend is automatic, add some reps with stick-handling. These are tough because core muscles struggle to stabilize the body.***

## *Side-to-Side or Twisting Lunges*

***with or w/o weight should always be done slowly to avoid back injuries. As with most exercises the knee should be bent so the femur is no lower than parallel to the ground allowing for individual differences in flexibility***





***Twist slowly!!***

## *Plyotubes*

***(sand bags) can be made from inner tubes (appendix 2).***

***They are the handiest piece of equipment and are used for jumps, lunges, squats, and throwing.***





## *Step-Ups*

***These are the easiest and safest to start up after a long hockey season. Lunges and One-Legged Squats should be added slowly, or there will be sore gluteus and hamstring muscles.***

***Never use a box or bench that is higher than the knees.***

***Do not lean way forward and put the knee joint in a vulnerable position.***



# *Side Lunges*

***Stand up in the middle, reach wide on each side.***

# Cross-overs uphill

***Partner resists slightly, but moves with him***

***Quick feet***
***Knee bend***
***Full extension***









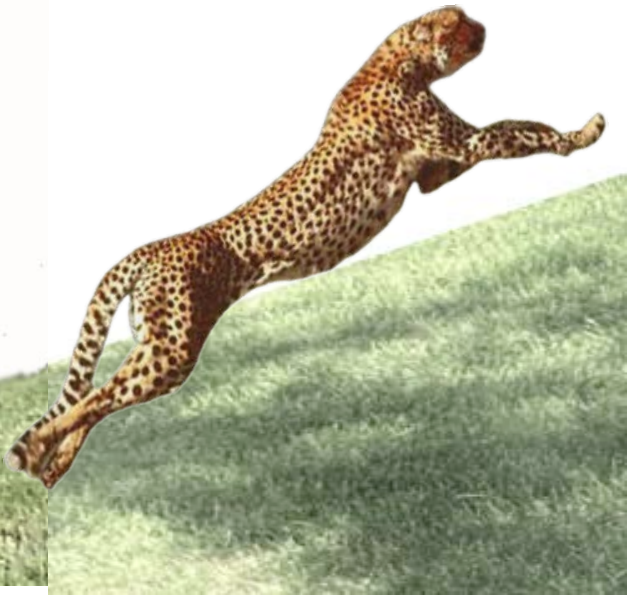
Our nervous system
learns best from variety.
Superset: With & without
weight so you shift gears to
faster leg turnover with arms.

***Dr. Harry Brown was right …***

***"We overload too much."***







***Harry Brown, PhD, was a pioneer for Hockey development in Minnesota. Without him there was no summer Hockey. No skating. No skill practice. No competition. He started it all by suing the state high school league:***

***"Allow hockey players the same privileges as basketball players who shoot hoops in the off season — the same privileges a trombone player or golfer, baseball, soccer or tennis player has." (The HS League gave up).***

***Harry was also a brilliant neuro-scientist and warned that we overload skills too much, ignoring the important rhythm and natural freedom of the entire body to make us efficient, powerful skaters like those who make it look easy. "We should skate often to the tune of a waltz***

***His advice (and the advice of a cheetah) is to add natural, unloaded training to improve skating skill***



***The best.***

***There is no better dryland exercise for skating acceleration.***

⋮

***But no one can make money with such simple advice, "Do short, explosive sprints uphill."***

***It seems that heavy barbell plates, squat racks, and hi-tech machines are needed to convince athletes.***

***Study a cheetah's development.***


A-R-X Resisted Lunge
no dumb-bells so arms
are free to multiply force
Ryan Johnson
NHL defenseman



# One-Legged Squats

***This can be one of your heaviest lifts, because two-legged back squats result in greater sheer stress in vertebral joints. That doesn't mean back squats should not be done at all – just not heavy.***

***I recommend Stuart McGill's work on spine biomechanics, injury prevention and rehab*** *(McGill, 2007 & 2010).*

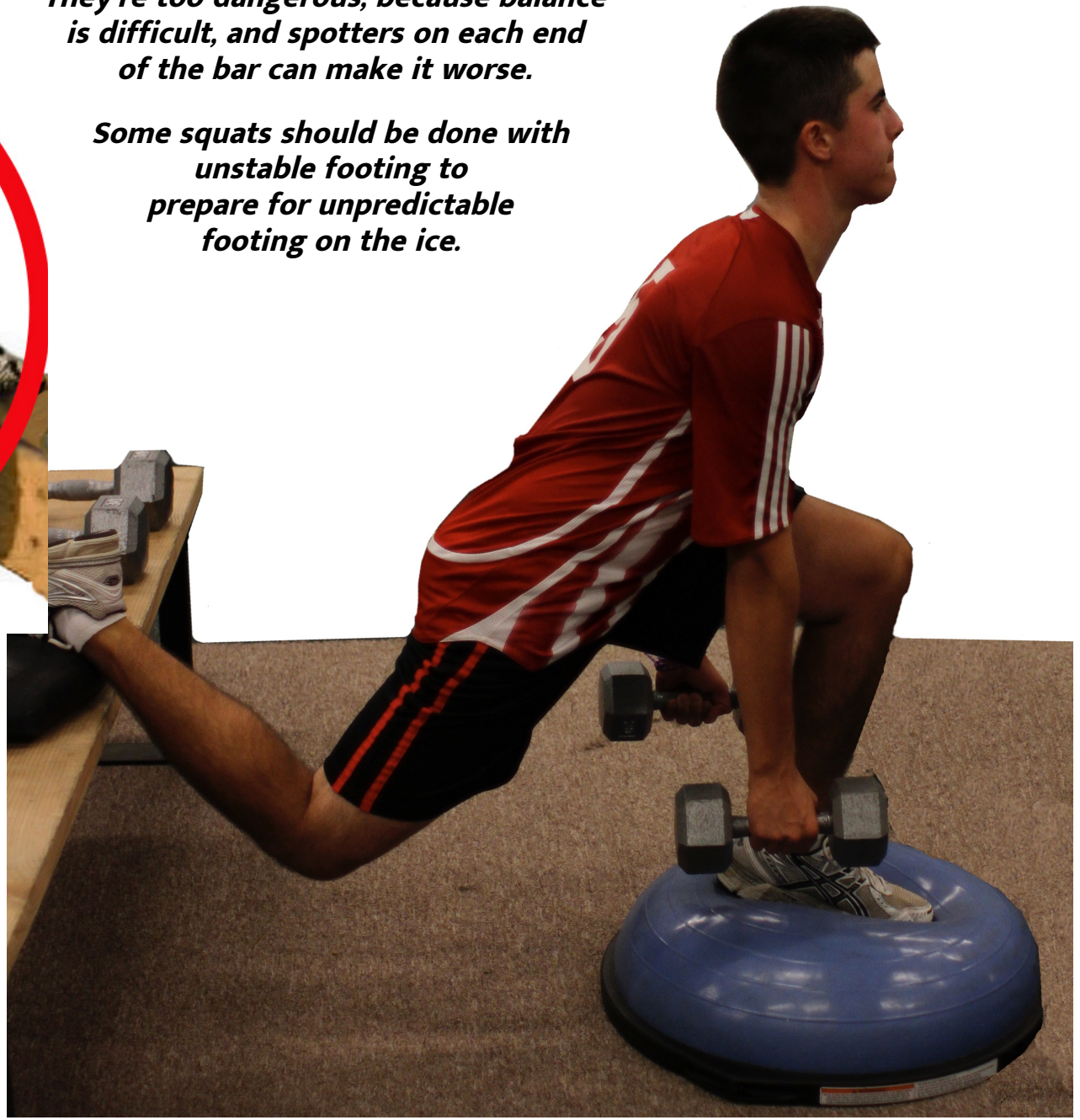
***Note:***
***Loaded hyper-extension helps prevent hip-flexor injuries.***

***Note2:***
***To protect the knee, it should not be more than an inch in front of the toe at the bottom of the lift.***

***Avoid One-legged Squats with a barbell.***
***They're too dangerous, because balance is difficult, and spotters on each end of the bar can make it worse.***

***Some squats should be done with unstable footing to prepare for unpredictable footing on the ice.***





## Dumb-bells are safer.

**If you fail with a heavy weight, DB's can be dropped.**

Also, Dr Stuart McGill's biomechanics lab has determined that when a heavy barbell is on your shoulders it creates huge shear stress on lumbar vertebrae.

As barbell weight is added you automatically lean more and stick your butt out to get the heavy mass (you+bar) above the arches of your feet.

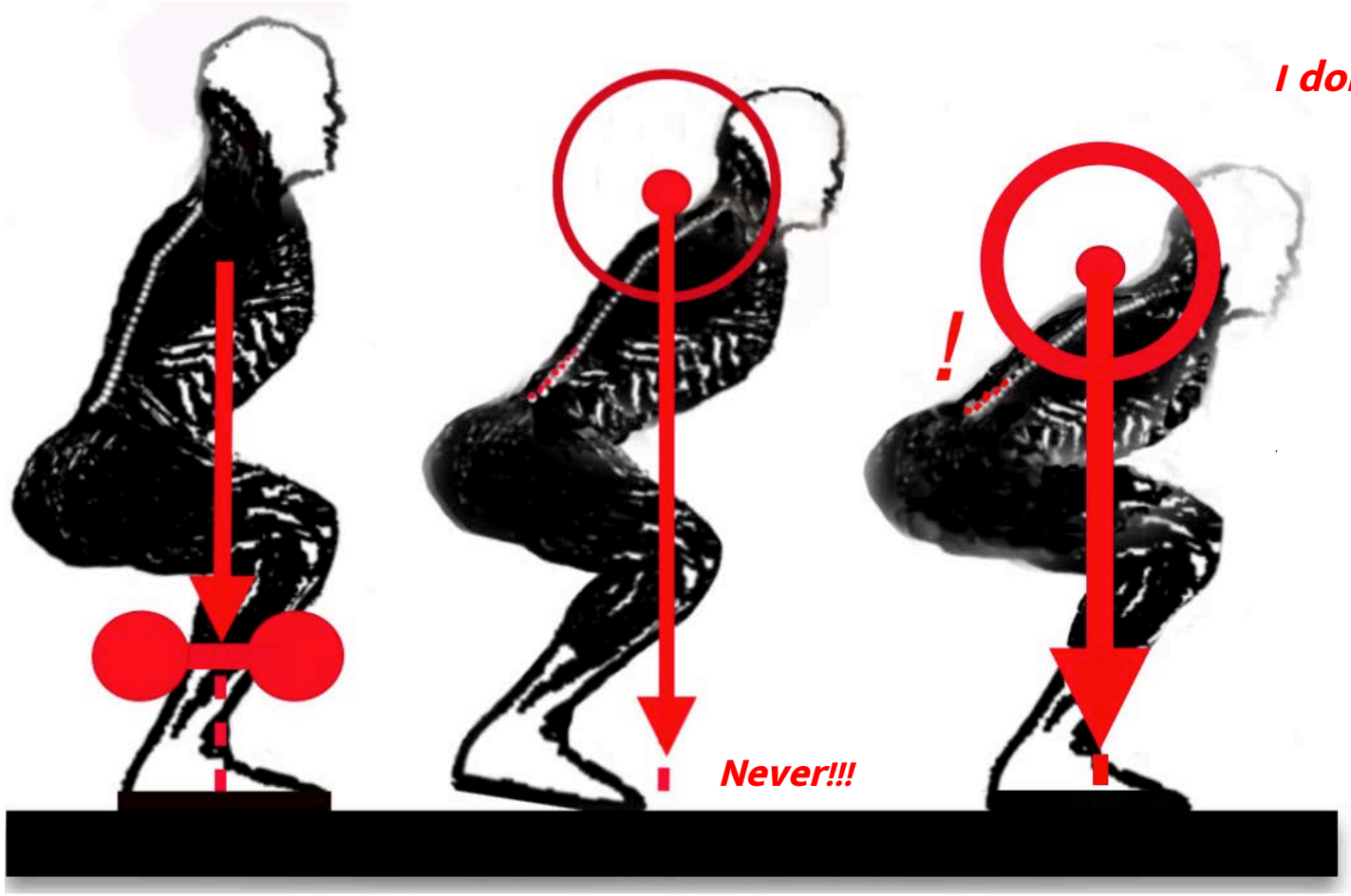
## Dumbbells are versatile.

Throw them in your trunk; go outside; do supersets {DB squats + jumps, hills, sprints}

No doubt, you can lift heavier with barbell squats.

**I don't believe it's safe.**

I have seen what permanent crippling injuries look like, even with nationally elite powerlifters.




To set down heavy dumbbells make two boxes from 2x8 lumber and 3/4" plywood on each face.

***One- and two-legged squats are both inadequate without explosive exercises.***

***However, everyone – even children – should do squats, perhaps with just a hockey stick.***

***Using dumb-bells you are preparing for the total forces and instability on one leg while skating corners at top speed. Notice the range of motion is inadequate at the top, because the working leg doesn't get near full extension. But, loaded hyper-extension at the bottom is excellent.***

***Also notice that his knee is not more than 1" in front of the toe.***



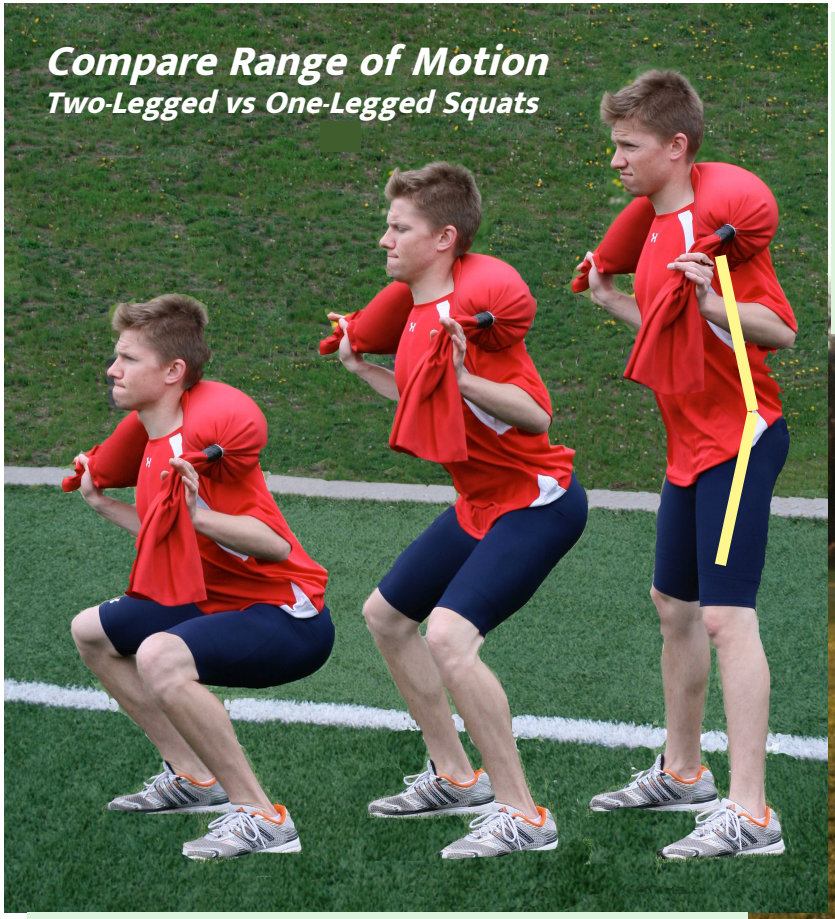
## *Twisting Lunges with Weight*

***Natalie is using a 60 pound PlyoTube (sand bag). Done slowly to prevent injuries to the back or knees.***

***A hockey stick for children.***

***It is dangerous to twist your spine with added weight. Therefore, throughout this book, I have warned several times to do this very slowly.***






***Both are good at the bottom, But woefully inadequate at the top. Of course, both are very slow.***

***Observe the loaded stretch …***

***Hyperextension at the bottom of One-Legged Squats.***



***Hyper-Extension at the hip joint occurs explosively at the end of some skating strides, and this results in hip-flexor strains.***

***It is a dynamic injury, so add dynamic exercises, jumps and uphill sprints that over-stretch the hip flexors rapidly, while they're under eccentric contraction to stop the motion.***

# Are squats a viable part of the speed plan?

***Perhaps** – in super sets with jumps, sprints and explosive dryland skating exercises*





***6-10m uphill sprints are the best because of the abduction combined with quick strides***

***Nerves are memorizing how fast you move your body***

*(A) Use a wide variety of exercises that push the range of motion, speed, and 'randomness' to extremes like those in hockey. (B) Integrate jumps, sprints and explosive abduction into every strength workout to increase speed, whole-body power, and reactive adjustments to awkward landings.*

***Posture on each end of the slide board is squat position: weight over the arches of your feet, not the toes.***



# *Side Lunges at Every Age*




***Even very young children who are just starting to skate should become comfortable in this position. Play games like follow-the-leader (coach) so it is fun. The weight should be very light – perhaps just a hockey stick … Light medicine ball as they get older.***

***Stand up in the middle; then down on each side.***

***Weight should transfer over the foot, but not more than 1-2" past it.***



## *Step-Under Side Squats*

***Create exercises that move the hips out of the usual 'boxed-in' range of motion, because on the ice there are no limits.***

***This is a good exercise for children, under a hockey stick held horizontally by a partner (not too low, so the players can keep their head up).***

***Avoid muscle strains during this exercise. Build up gradually over several weeks, and execute slowly.***



# Dip Squats to 90°

## Not down to parallel

*One foot doesn't touch the ground, so core muscles are active in balance. The more repetitions you do, the better you get at keeping the shoulders up.*

*Beginners might do these next to a wall for balance while learning. Using a light weight or a hockey stick is actually easier than no weight at all.*

*The stick assists balance like the long pole held horizontally by a circus performer on the high wire.*

*This is perfect posture by a peewee on his first day. Now he's a pro.*

*Caution: the knee is not more than 1" in front of the toe, and the angle between upper & lower leg is about 90°. That's the limit for many athletes, and approximates the deepest knee bend during skating.*

**DO NOT ALLOW MORE KNEE BEND ON THIS ONE PARTICULAR EXERCISE**



***Dryland skating practice continues on family vacations to the north woods.***

***Lol: I don't advocate dropping rocks on your toes with or w/o shoes!***

***Some bring empty plyotubes with them and fill sand when they get to the camp.***

***You don't need expensive fitness centers or treadmills, or barbells, or … fitness instructors.***

***Use your creativity and the principle of specificity as great players did sixty years ago.***



*Joe Finley pursues his professional career on a Canadian fishing trip.*