Think Outside the Boxes



Think Outside what Boxes?

Power rack Boxes:

Squats are a great exercise …
only if combined with explosive movement of the whole body.

Weight room boxes:

rooms must be at least 60' long & narrow for a sprint track; not square.

AI boxes are consensus thinking:

Sometimes consensus is wrong.

No pain - no gain boxes.

'No pain, no gain' tortured many football players who then died.
Stay out of Hockey. It's not pain, it's quality reps that develop hockey players.

Training in a box doesn't increase speed

Squats are a very productive lift ... but ...

... the range of motion is limited to a box. The bar moves in one plane only for ALL lifts. That's inadequate for the random three dimensional movements in a hockey game.

Hip abduction is missing. Skating is critically dependent on thrusts to the side.

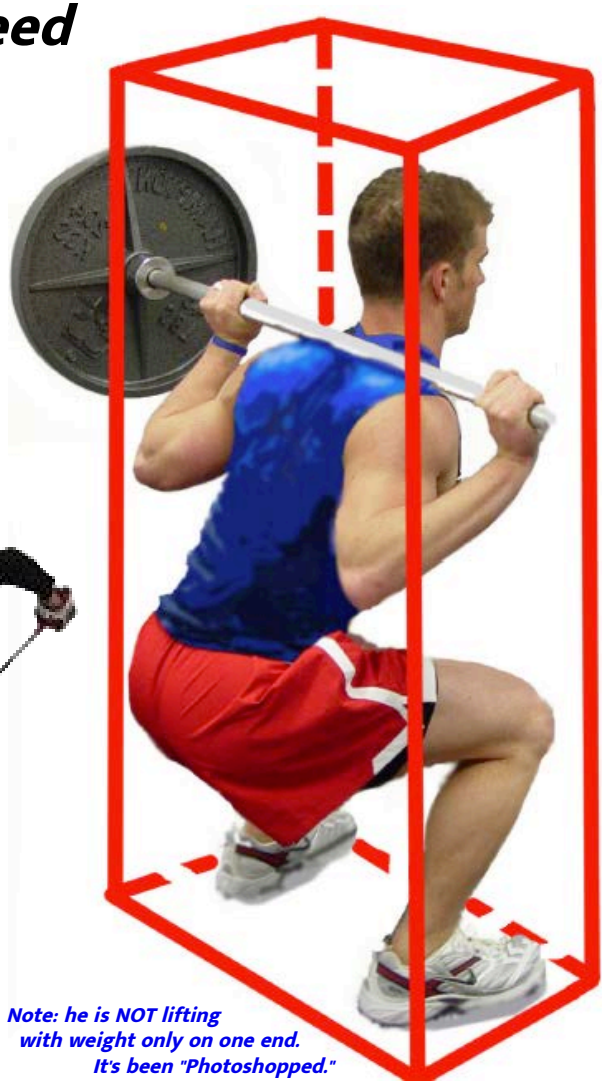
The speed of motion of your center of mass is slow. The heavier the lift, the slower you move. Your nervous system is memorizing speed & range of movement.



There is deceleration to zero velocity in the last half of each squat, precisely where skating requires explosive acceleration.

The hands are fixed to the bar, so arms are not free to multiply lower body force naturally.

Heavy two legged squats are dangerous. Sheer-stress in the back is much greater than when the weight is not on your shoulders (McGill 2009). Injuries can last a lifetime.



Note: he is NOT lifting with weight only on one end. It's been "Photoshopped."

In what ways should we think outside the box?

1) ***Athleticism requires <u>SYNERGY</u> of movement – not isolation of the pieces*** –
but we are encouraged to train each element separately: **<u>strength</u>** in one workout, **<u>speed</u>** in another, **<u>endurance</u>** yet another. This might work for ***maintaining*** fitness among NHL players, but not for kids, who need to develop the synergy of movement that NHLers acquired as kids. Athleticism is not developed by isolating the pieces but by putting them together. However, that would eliminate many personal trainers who each sell their own isolated piece of the pie.

2) ***Off-ice priorities are skating Speed, Quickness, Agility + Speed-endurance.***
But, how often in the weight room are athletes accelerating their bodies as quickly as possible? The current priorities are mostly: (a) accelerating barbells, not bodies and (b) slow endurance training, not speed-endurance. Strength is important, but to improve skating it should be combined with sprints, jumps, and skating-specific drills in creative workouts. We'll discuss many.

3) ***The range of motion of traditional strength exercises is hip extension ...***
limited to a vertical forward/backward plane: ie squats, cleans, leg press. However, the major source of power for skating begins with ***hip abduction*** (thrusting to the side). In other words we are training in a ***phone booth*** for a sport in which hip movement is more wide-ranging than in any other sport.

4) ***<u>Integration</u> of whole-body force application is more important than building strong muscles !***
If every muscle in the body is stronger from isolating it in the weight room, the result is ***<u>not</u>*** a more powerful athlete until she/he trains the whole-body like a cheetah.

5) ***<u>Isolation</u> of core muscles is a fad for couch-potatoes.***
For decades, research has shown that isolation of muscles is unlikely to improve athleticism, yet we have somehow decided it should work for core muscles.
For <u>teen-agers</u>, <u>synergy</u> between core muscles and others is the top priority.

<u>Core exercises should feel dynamic, and utilize whole-body movement</u>.



6) *Hockey endurance = maintenance of speed, strength, toughness, and skill.*

Too often, the words 'endurance training' mean that movement is ***SLOW***, yet the goal is to play the fastest game possible. Slow aerobic training and long shuttle sprints do NOT fit the objective, because the nervous system is memorizing slow repetitions whether we like it or not. Muscular endurance in a skating range of motion is critical, but we've paid little attention to skating-specific endurance training.

Of what value is cardiovascular fitness if a player cannot maintain knee bend throughout each shift?

7) *Defining the objectives is the first step. Hockey coaches must initiate this process.*

Then … communicating those priorities to strength-conditioning coaches is the best way to utilize their expertise.

Strength & Conditioning coaches do NOT determine the priorities; they plan the implementation.

8) *Blow out the walls of weight room BOXES … and build SPEED GYMS.*

Stan Hubbard built this versatile Speed Gym in Albuquerque, and it serves the hockey community plus many other folks of all ages and interests.



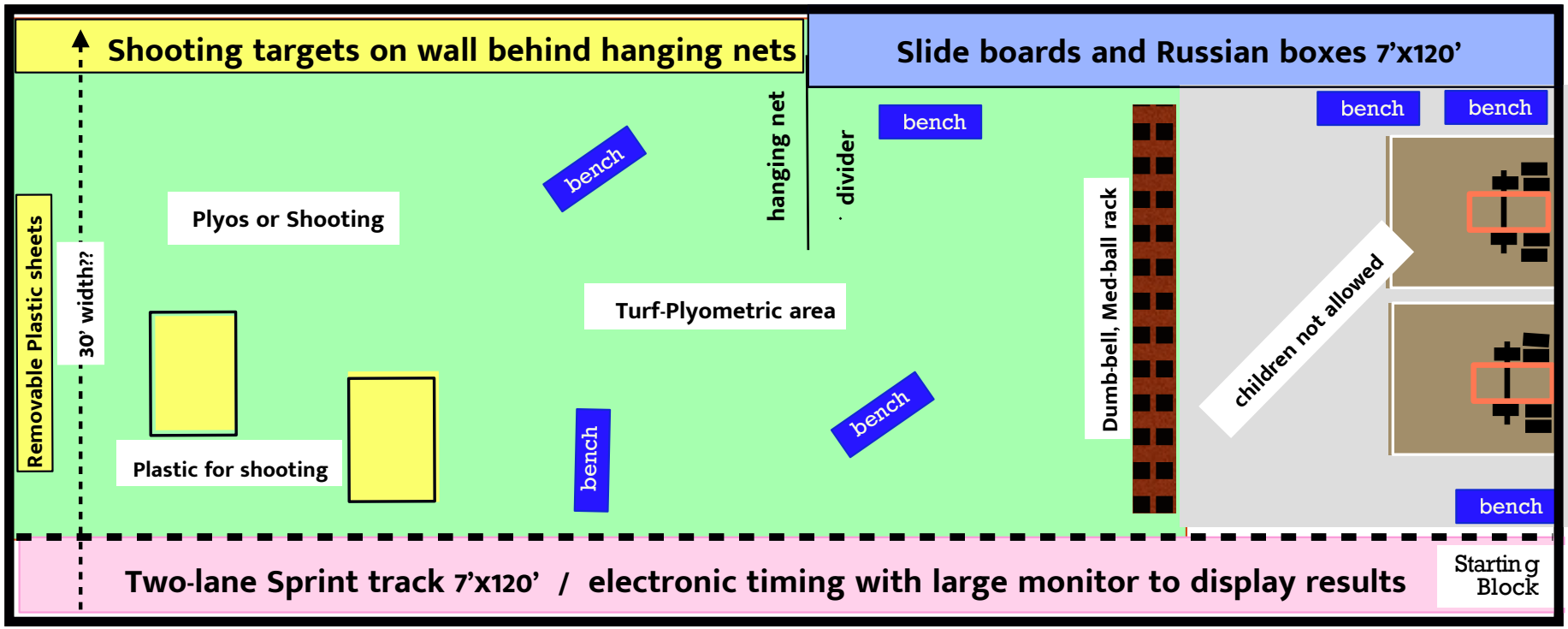




Compared to a traditional weight room there's a lot of hockey in a SPEED GYM:

- *sprinting and jumping are highly related to improvements in skating speed, quickness, and endurance;*
- *creative coaching will combine stick skills with dynamic strength in a skating range of motion; and*
- *supersets challenge the nervous system to adjust in many different ways.*

Blow out Walls of the Weightroom Boxes. Build SPEED GYMS'



We know that skating acceleration, speed, and agility are highly related to sprint speed & vertical jump. After many trials with thousandsof players. we have not found meaningful relationships between skating and other activities in the weight room.

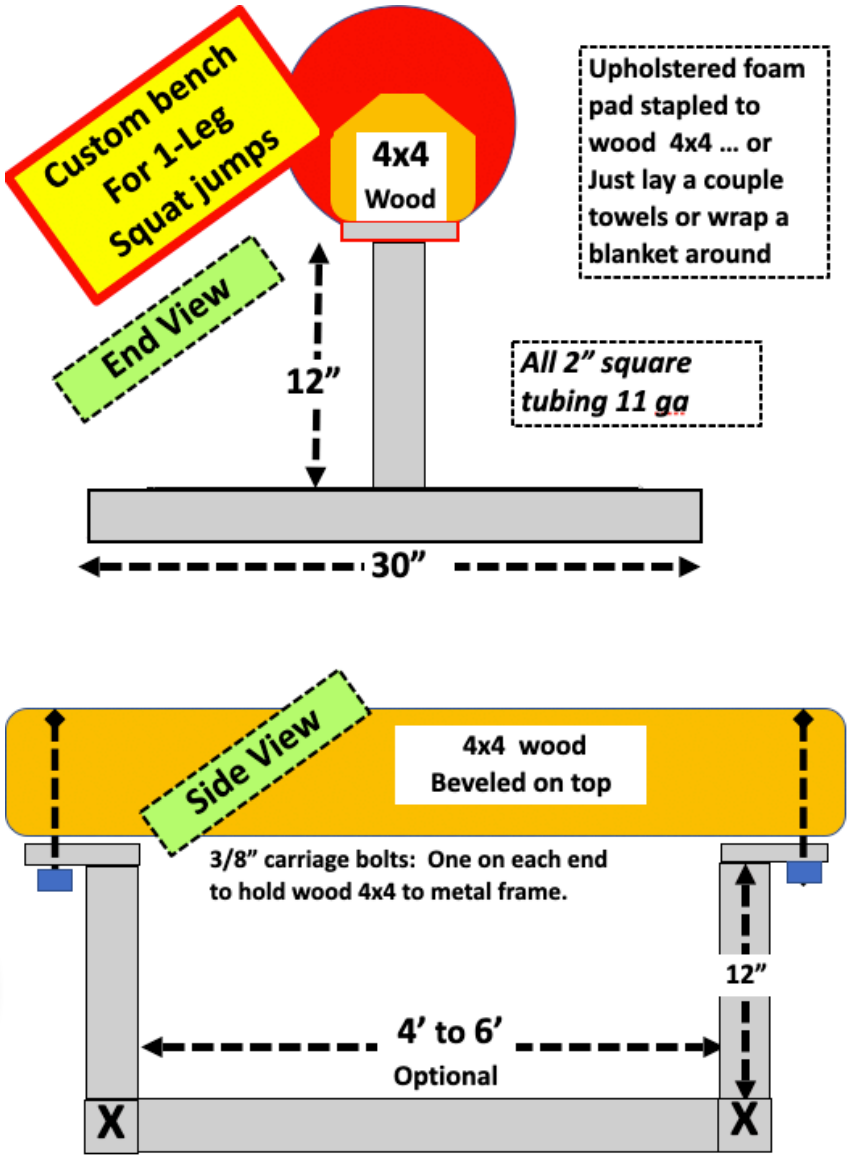
Is this because the arms must be free to move vigorously to multiply lower bodyforces as in a squat jump? is it because the nervous system is memorizing slow movement as weight is added to the bar?

Is it because the range & speed of motion are vastly different than skating? Or, is it because all weight training includes deceleration in the last part of the motion, where skating requires acceleration?

Weight training for older teens should be combined creatively with explosive jumping, sprinting and other skating-specific exercises. Incorporate supersets

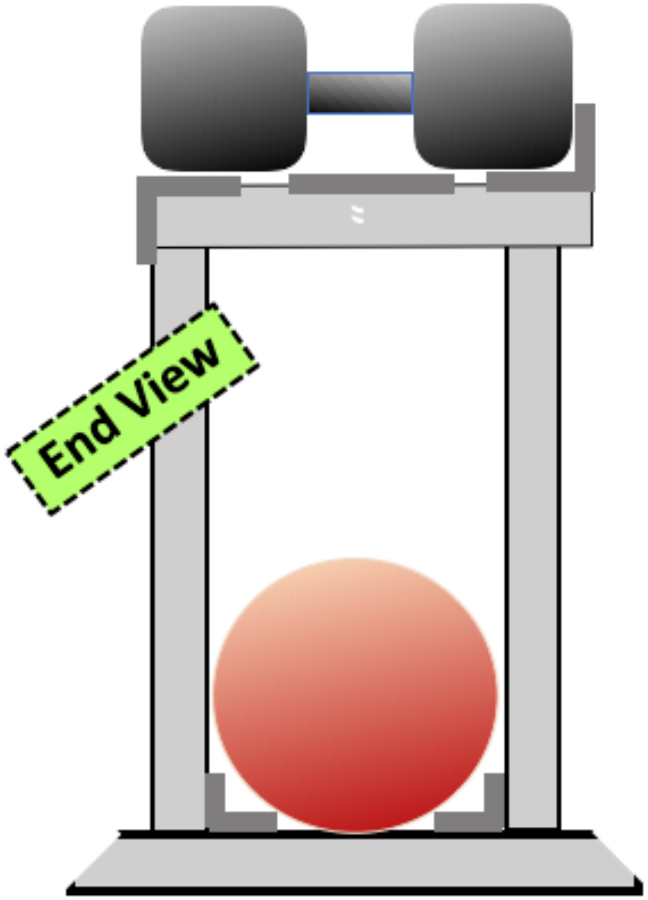
Handy Speed Gym Equipment





Notice he is using a 50# weight vest, not a bar, so arms are free to multiply force naturally as he jumps. He will finish with unweighted jumps to increase speed of movement.

Combination Dumb-bell & Med-ball Rack to divide the speed gym



Differences from the norm

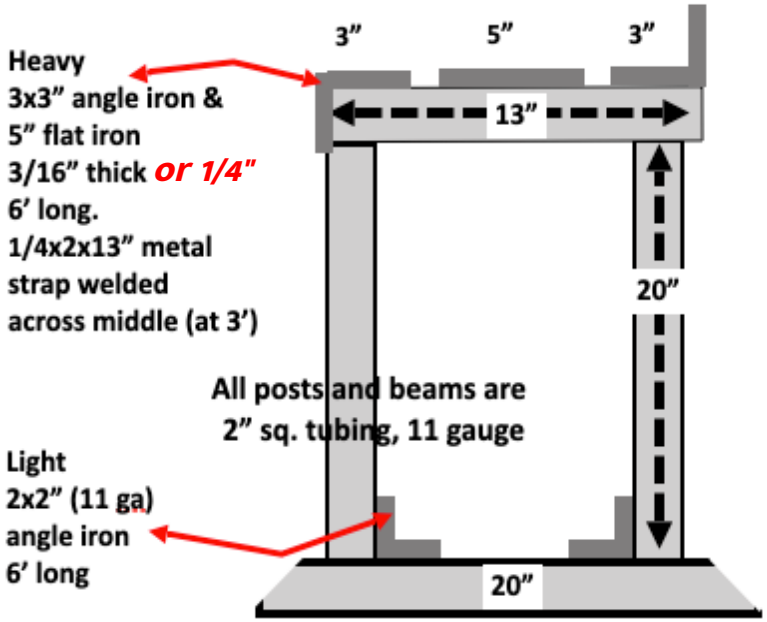
Accessible from both sides, so the top is flat.

Never 2 levels of dumbbells. That's a back-breaker.

Naive designers put the angle iron lip in the middle where it breaks fingers.

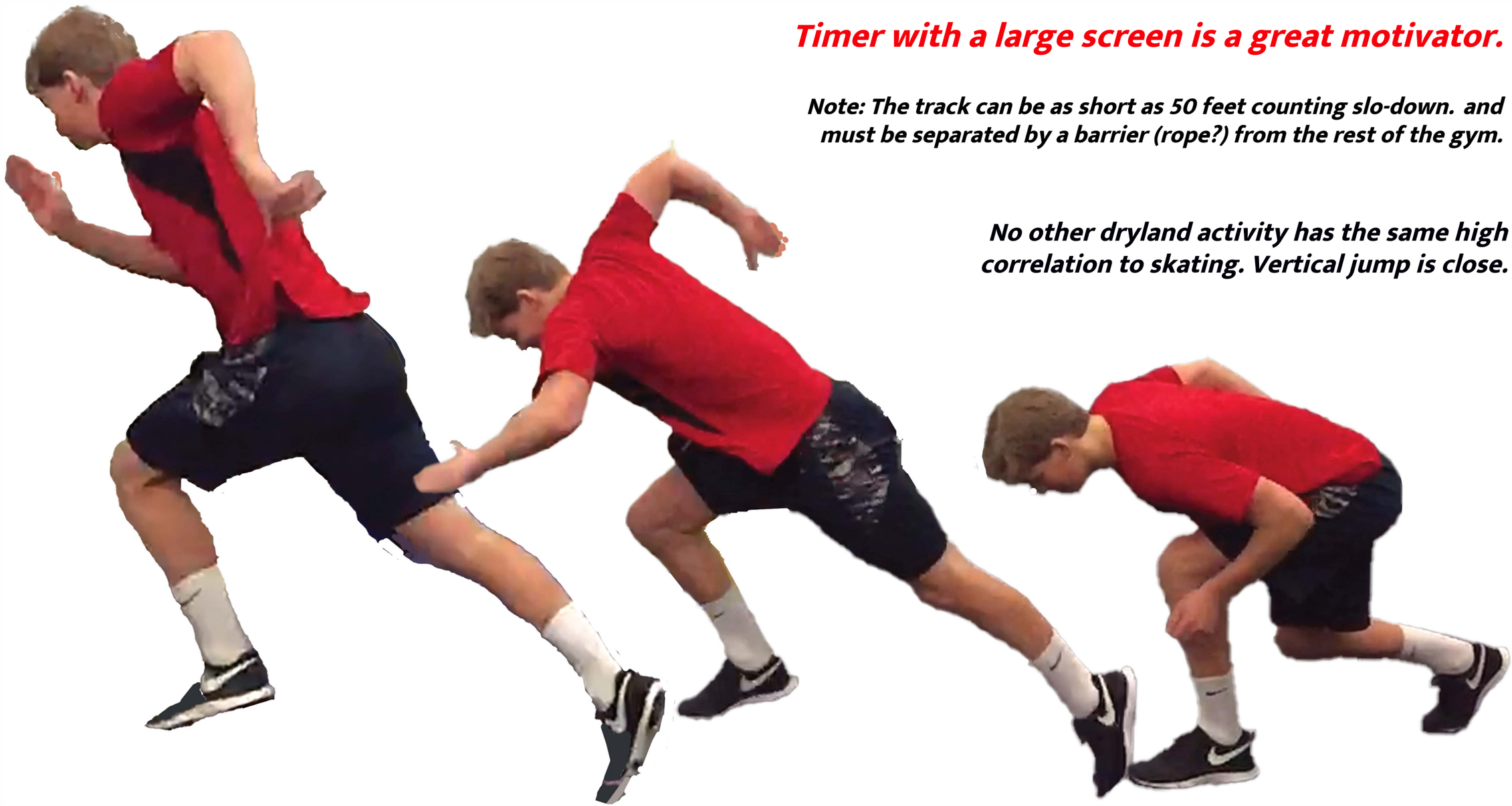
Dumb-bell rack 6' long

Vertical posts shown are 4' apart.



Three of these in a row (18') divide the Gym into heavy weight training vs Plyos & shooting

Two-Lane Sprint Track & Electronic Timer are Speed gym Features



Timer with a large screen is a great motivator.

Note: The track can be as short as 50 feet counting slo-down. and must be separated by a barrier (rope?) from the rest of the gym.

No other dryland activity has the same high correlation to skating. Vertical jump is close.

FEEL THE KEYS TO SKATING SPEED
by exaggerating on the slide board

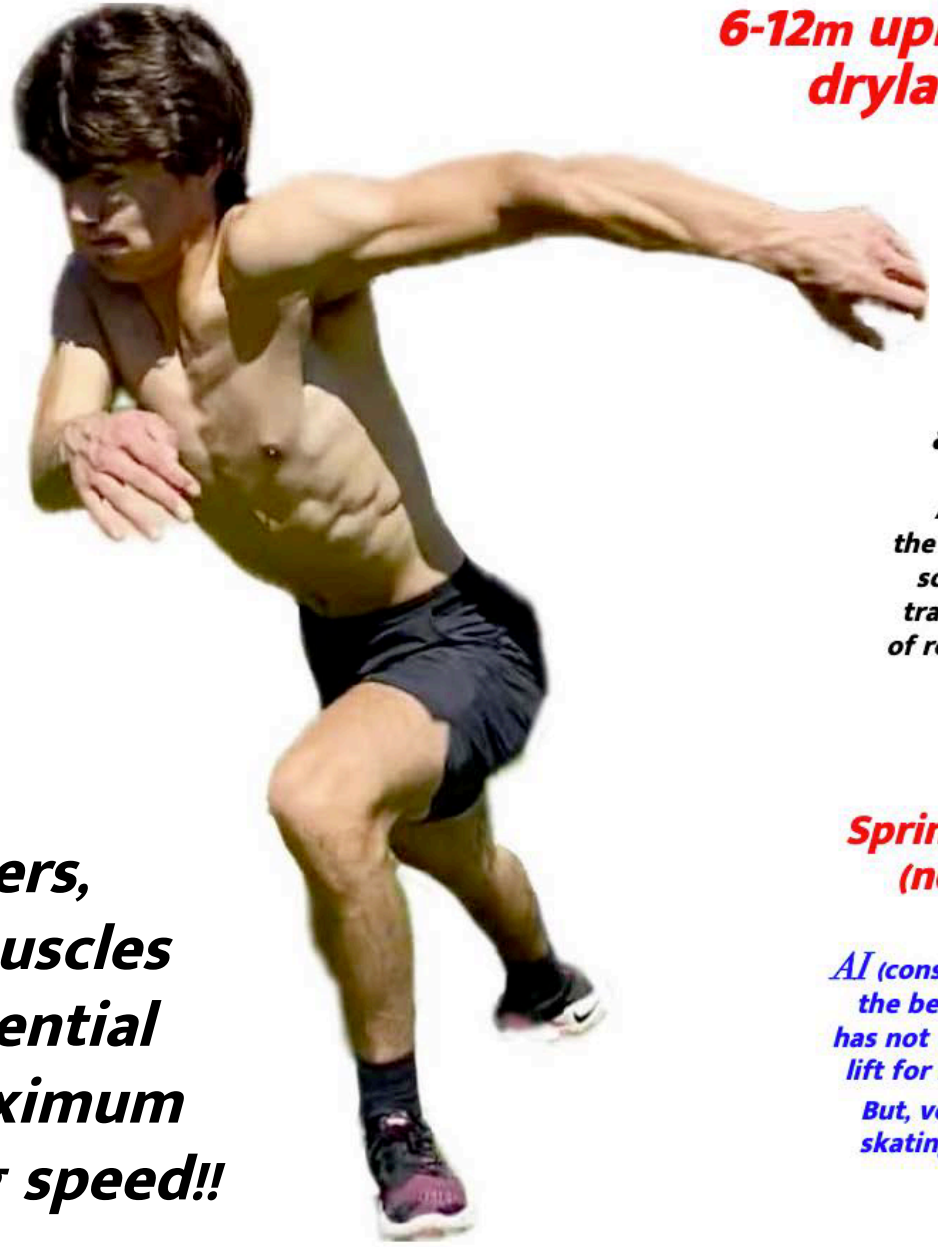


This exaggeration drill shows why she's one of the fastest girls we've tested

Exaggerate arms to multiply hip abduction force when there are no pucks involved

Keys:
Knee bend.
Abduction!!!
Maximum force!!!
Unrestricted arms!!!

At every age, sprints improve speed



6-12m uphill sprints are the best dryland exercise to improve skating acceleration.

1) The nervous system memorizes the speed of joint movement, and

2) athletes will automatically use some hip abduction + side-to-side arm movement to accelerate uphill.

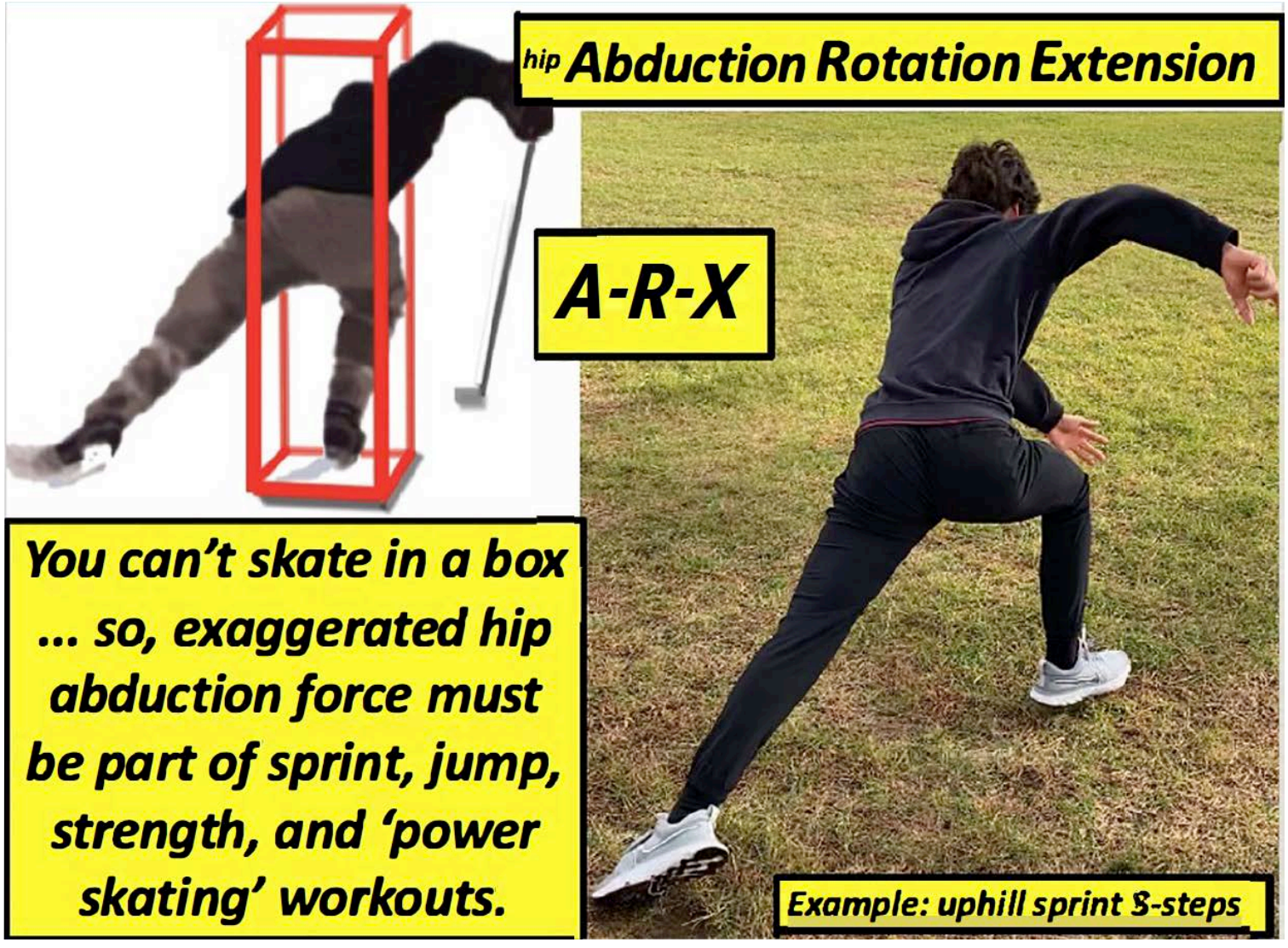
Apparently, there is a mechanical advantage in the architecture of muscle attachment that favors some hip abduction at the start -- even on a flat track for two or three steps. This initiates a chain of reflexes elevating the arms & shoulders to raise the center of mass, stretching upward and side-to-side on abductor (gluteus) muscles through the core of the body.

Sprinting & skating are 'whole-body' (not just lower-body) movements.

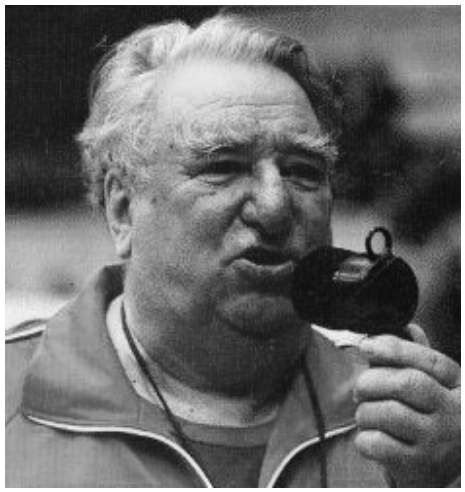
AI (consensus) claims that two-legged back squats are the best way to improve skating speed, but research has not verified those claims. Squats can be a valuable lift for many reasons when done with safe technique.

But, volumes of research have not shown they build skating speed - probably because the arms are busy holding the bar, not multiplying leg power as seen with this 15 y/o athlete.

Arms, Shoulders, Core muscles are essential for maximum skating speed!!


hip Abduction Rotation Extension
A-R-X
You can't skate in a box ... so, exaggerated hip abduction force must be part of sprint, jump, strength, and 'power skating' workouts.
Example: uphill sprint 3-steps

Two coaches who thought outside the box



Anatoli Tarasov considered dryland as important as on-ice training, so he led every session … and they were tougher than games.

He analyzed 'Hockey Athleticism;' then trained off-ice for speed, explosive strength, and speed-endurance, establishing a physiological comfort zone that was virtually impossible for opponents to match.

He planned dryland training for the demands of a game.

We ignored his lessons, so academicians and strength coaches took over and determined off-ice training priorities, NOT hockey coaches.

Herb Brooks played on two Olympic teams, & several National teams. He actually FELT the impact of relentless Soviet 'speed-skill.'

Therefore, as a coach in 1980, Brooks knew his Olympic team would need to practice in an elevated comfort zone every day for six months, insisting on a super-fast pace in each drill. It was up and down the ice for two hours … FAST.

Movie highlights emphasized the 'Herbies,' (skating-the-lines) when he was upset with the pace. However, the team conditioning plan was Overspeed Skill Training for two hours. Brooks was relentless, because he knew the Soviets would be. Coaches should have learned from these models, but we did not.



Practices 'condition' slow habits into the CNS when they contain slow repetitions, especially at youth-junior levels when nerves are learning faster than ever again.

In how many ways is youth development different?





Arms
↔
multiply force

Accelerate
Your Body
not just barbells

Hockey Endurance
Is Speed-Endurance



Speed!!!
Strength & Explosive
Supersets



The BOX of Myths

SLOW cardio
Static Stretching
Untested opinions
Traditional dogma
Limited weightrooms

Range of Motion
*Hip **A**bduction-*
***R**otation-**E**xtension*



Think Outside the Box

Athletic Synergy
by integrated training
and PLAY !!!