

Let Development Happen

Let them PLAY;
Let creativity supply the fun;
Let trial and error be the coach;
Let game-like activities develop the body;
Let competition – not X's & O's – develop the mind.

Young players are NOT small adults.

Developmental plans must fit their growing athleticism,
NOT a model for established college or professional athletes.



For decades, I've seen physical abilities in adolescents that increased their readiness for speed and strength training.

These include efficiency running and skating, coordination, dynamic balance, core strength, and mostly a passion for improvement.

As children, they obtained a broad base of athleticism playing other sports. and advanced fast when training zeroed in on skating speed and athleticism.

Athleticism is not the simple sum of the parts;
It's the synergistic combination.

Unfortunately we pay big bucks to train parts

Kids learn new movement by copying and Trial-and-Error of course

That's our evolutionary history. So, it's helpful to have great skaters join your on-ice training. Without that luxury, put pictures on the ice for everyone to study while they're waiting in line.

The most important lesson? Getting the most out of each stride – powerful abduction!!

Use exaggeration drills. Emphasize the FEELING of MASSIVE POWER



Repeat this feeling off the ice just as when you skate!

Dryland warmup and post-ice training

build good habits that last a lifetime.
Be creative. Make it a fun game.



The Darwitz-Okposo posture is critical for skating.

Every beginner runs on skates, but wants to stride like Natalie and Kyle. If (s)he invests a few minutes a week on dryland repetitions, this will reinforce knee-bend habits, postural strength, positive imagery, muscular endurance.

Coaches: Place many photos on the ground showing perfect posture and finish of a powerful skating stride.

Also, use video and pictures of your players so they can see if their posture matches that of their idols.

Have players hold their positions isometrically. It's difficult and takes strength, sometimes to the point of a little pain. Then they catch on quickly to do it like the photos.

Isometric Squats and Isometric Side Lunges

Great starting exercises, because coaches can adjust posture and teach while positions are held isometrically.

Basic Skating Postures

Skating instruction starts here, before on-ice.





Side Lunges

***hold** isometrically for a few seconds,*
giving coaches time to observe and teach.

Stand up in the middle, and step WIDE.
But knee and body weight are not outside the foot.

Slide board repetitions

Train arms to 'drive' the legs

At a young age – while your nervous system is learning fast, it is important to practice integration of upper body, core muscles, and lower body to maximize skating power.



Carrying pucks, passing, receiving must also be practiced on the ice and slide board. But, your nervous system must rehearse 100% speed, not 90%, as when you carry a puck.

OverSpeed!!!

This is left out of too many training programs for youth learning and NHL preparation for playoff pace. You don't get faster training at 90%

Use video. Have parents watch for 'power posture': keeping your weight back over the arches of your feet, not forward over your toes. It's the same feeling as if you're doing squats.

Arms, shoulders, core muscles

must be integrated into dryland reps. This does not happen when hands are holding a barbell or dumbbells.



Progression *requires near-perfect execution before training at the next level:*

PROGRESSION

1 Two-legged squats and isometric squats - weight over the arches not toes;
2 Lunges, Twisting lunges, Side lunges with no more weight than a stick;
3 Step-ups: slow (5-second) negatives; the bench is not as high as the knees;
4 Slide board with knee bend throughout the entire interval;
5 Two-legged squat jumps w/o weight. Land quietly with knee bend.

Watch for adequate strength to 'stick the landing safely-quietly' on two-legged jumps in positions discussed on the previous page. If players pass this test, they might be ready to move to a higher level. Progression could take years for some athletes – weeks or just days for others.

6 One-legged squats with dumb-bells;
7 Two-legged squat jumps with appropriate weight; not for pre-pubescents;
8 One-legged Jumps (Heiden jumps and Russian Box Jumps); control landing;
9 Lunges with weight (we call a sand bag a 'plyotube');
10 StepUp jumps might be added after weeks or years of strength-&-jump training, but not before puberty. Weighted jumps with sand bags (10-100 pounds or more only at appropriate ages). Jumps with a bar are not recommended.



Squats: Handle safe loads. Never compete or do a max test, no matter how insistent the strength coach. This is way too common in colleges and benefits no one. Save the Max effort for jumping, sprinting, and skating.

The femur (thigh bone), knee, and foot should all be in the same vertical plane. So, if the toes are pointed out, the femur should line up. Players with inadequate strength subconsciously adjust the knee inside the plane for leverage, but this risks damage to ligaments.

The back must remain in a NEUTRAL POSITION, which is the normal (lordotic) curvature ... never more or less arched than when standing. Head and neck should also be aligned normally, not looking up toward the ceiling. Squats are an excellent hip flexibility exercise at the bottom, not the top, so a variety of exercises is best.

Dryland skating practice appropriate for every age

It is not my intention to duplicate the wealth of information you'll find online related to general athleticism: quick feet, coordination, dynamic balance, tumbling, climbing, and combative games like wrestling.
For functional athletic development at all ages, I rely on the practical perspectives of Vern Gambetta and Steve Myrland (see separate references in the bibliography).

Each has had a lifetime of experience coaching all ages, college players, pros, and younger athletes. You will find numerous creative ideas for ***functional training: MOVING THE BODY.***

Lunges: ***walking or stationary, lunges with a twist, side lunges, with and without weight. You can never get enough of this position for preventing hip injuries and improving skating performance.***

When twisting your spine, move slowly!!!

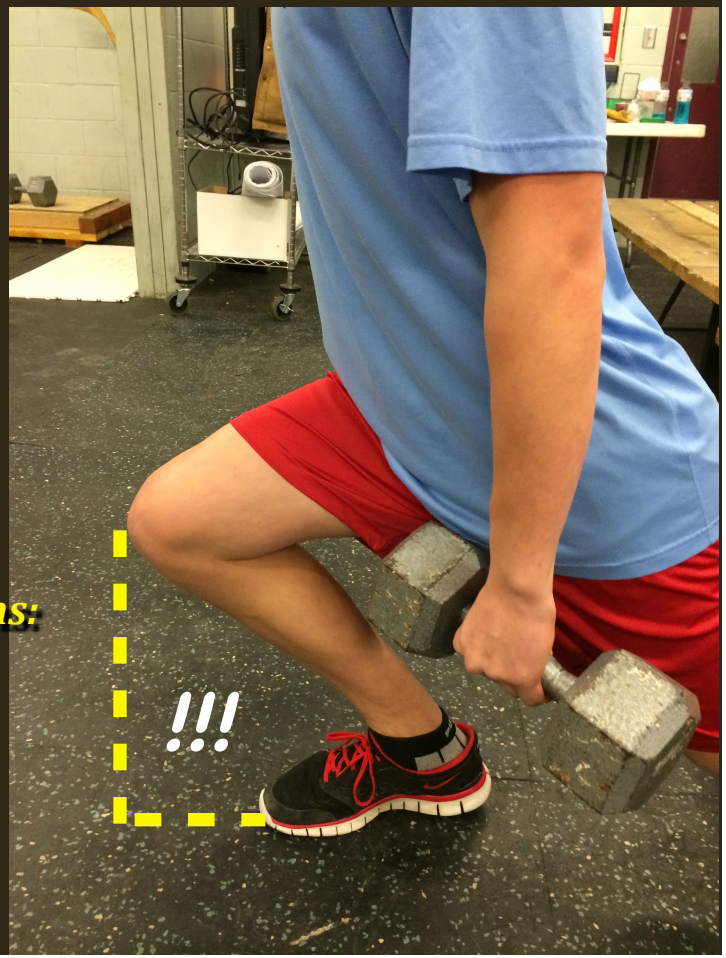




What to look for ...
Safety first.



Knee position:
Safe & productive



On all squats (1 or 2 legs) watch for 3 unsafe positions:

1) Knee too far in front of the toes ––––––––>
   (2&3 not pictured here)
2) Too much knee bend . Hamstring below parallel.
   The butt is very low ... close to the heel.
3) Knees shift toward the midline.

Why are we told Strength training can wait till after puberty?

Is this thinking in a traditional box, in which 'strength' automatically means barbells and weight rooms? Do strength changes necessarily mean muscle concractile proteins and increased mass? When children move comfortably in ways that indicate strength, it doesn't always fit lab definitions.



Skating strength for young players is the ability to move body weight explosively, using one leg, starting from a position of knee bend.

Follow a safe progression of strength exercises and two-legged jumps before advancing to one-legged jumps later. It might take years.

The art of coaching for development is fitting the pieces together, and doing it in a way that increases the passion to improve and compete.

For decades, Bob Richardson (Boston, MA) has coached college and national teams, and scouted in the NHL. His first love, however, is developing young players, and he has undertaken a lifelong project to observe successful coaching-learning styles, study the related neuroscience, and analyze outcomes. He offers this advice to coaches:

The goal for every training session: "You want players to be so excited by what you did, and how you did it; so affected by the coaches passion, they ask, 'Do we have to stop? When is the next practice?'"

Passion. Physical development requires intensity and focus. That is possible only when there is Fun. Creativity. Speed. Read-react. Trial-and Error. Effort. Exhaustion.

Uninhibited Passion.



Physical athletic qualities to develop during childhood …
then refined and expanded throughout adolescence:

Move the Body: Fundamental Athletic Skills: Core Synergy
Sprinting, jumping, landing, bounding, tumbling, agility, throwing, catching while moving, swinging a bat, racket or stick, coordination, range of motion, and dynamic balance.

A reminder: I write about dryland development of physiological qualities related to skating. That's all. I'll leave other important athletic attributes to more-qualified writers and coaches.

Reactivity: all the above, but in response to unpredictable obstacles
Herb Brooks added this to the long list of athletic qualities. His point was, "Great players spin off a check, dodge a tackler, react at the last second to an errant pass – and we don't even notice how difficult it was, because they make it look so easy." This is possible only if much of the training has elements of competition with chaotic, unexpected obstacles.

Strength training at EVERY age … not necessarily weight training
Explosive strength is an essential base for athletic development. Dryland skating practice and whole-body strength are two examples, plus climbing, wrestling, gymnastics, etc. Weight training is woefully limited compared to Moving Your Body.

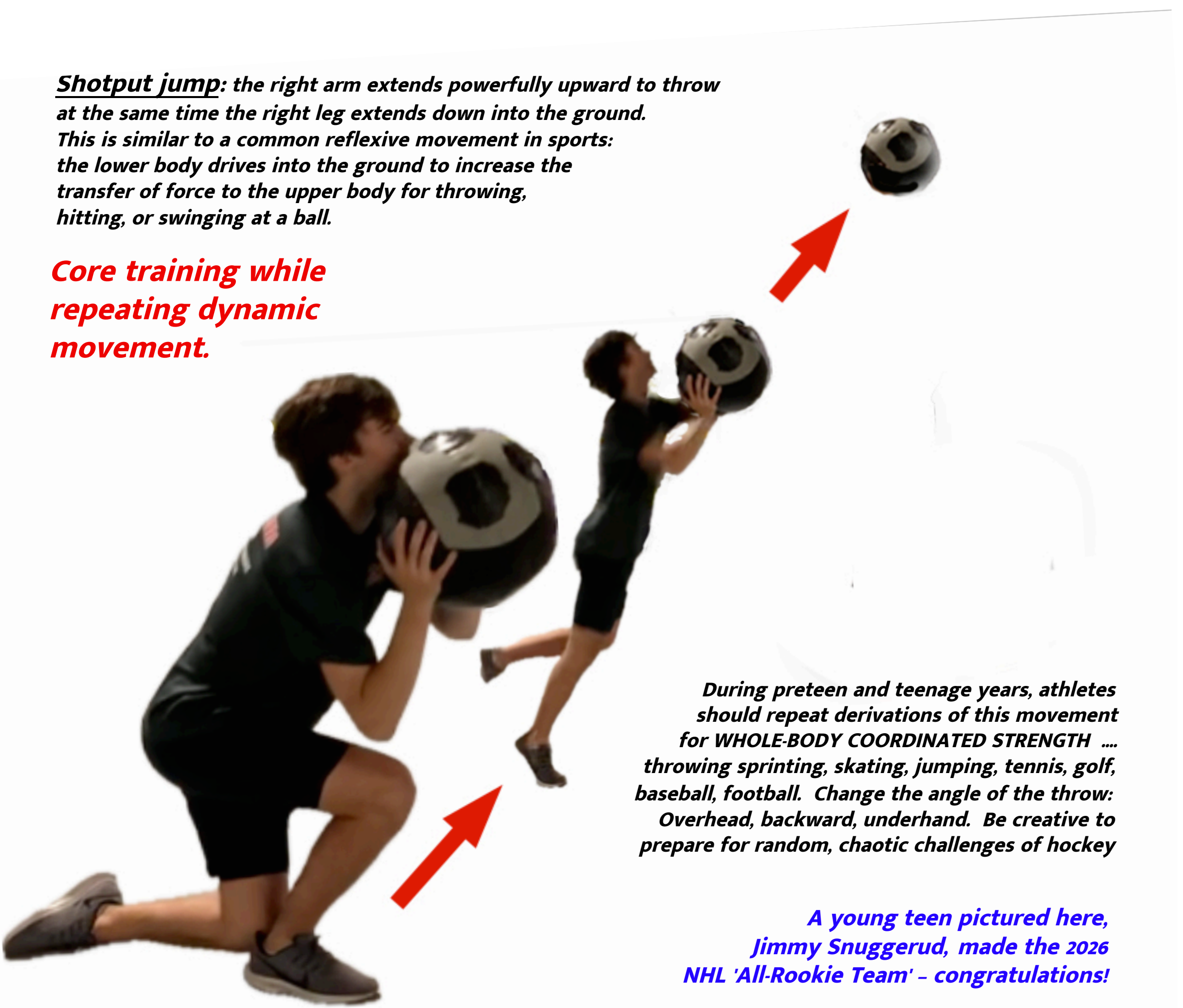
Cross-Training to stimulate neuroplasticity
Playing other sports: Combining diverse physical skill development with Read-react creativity, Vision, Anticipation, Competitive toughness, plus all the above at once.

Hockey Skills + Skating quickness, agility, balance, efficiency.
Dryland and On-ice – put as much of it together as possible. Develop athleticism, not pieces.

Play Hockey any time of year … Scrimmage is the best.
Eliminate scoreboards and evaluation. Promote trial-and-error. Just PLAY.

***Shotput jump**: the right arm extends powerfully upward to throw at the same time the right leg extends down into the ground. This is similar to a common reflexive movement in sports: the lower body drives into the ground to increase the transfer of force to the upper body for throwing, hitting, or swinging at a ball.*

Core training while repeating dynamic movement.



During preteen and teenage years, athletes should repeat derivations of this movement for WHOLE-BODY COORDINATED STRENGTH .... throwing sprinting, skating, jumping, tennis, golf, baseball, football. Change the angle of the throw: Overhead, backward, underhand. Be creative to prepare for random, chaotic challenges of hockey

A young teen pictured here, Jimmy Snuggerud, made the 2026 NHL 'All-Rookie Team' – congratulations!

Dreaming of scoring goals in the NHL someday?

Stop dreaming.
Shoot thousands of pucks!
Work on quick release!

Explosive skating power plus dynamic balance:

six jumps one leg, then six with the other



Challenge your Nervous system

Plyotubes: sandbags made from inner tubes

Train core muscles and build athleticism at the same time as you Abduct, Rotate, eXtend from the hip

If you are already lifting weights, superset with dynamic movements like these – or sprints & jumps

The Most Important Factor … Play!

For Physical and Mental Development

The wide variety of physical challenges while playing in a sport: moving the body in reactive (unpredictable) ways to various, chaotic stimuli, is an important foundation for neuromuscular growth. This is how Bobby Orr and the Cheetah became so athletic – not from isolating each piece of the puzzle in a separate lesson, but by putting it all together every day. Playing, interacting or competing with siblings or friends, copying others via mirror neurons, trial-error; these have been the basis of animal-human learning forever.

Putting it all together during childhood is just as important for mental skills as well: learning competitive instincts, selective vision, anticipation, creative read-react decisions.

Youth and high school sports are excellent mental and physical challenges to the Central Nervous System, and in many cases to the cardiovascular, respiratory, and metabolic needs of growing children. Choose active, dynamic sports, the ones that require speed, quickness, agility, explosive strength, hand-eye coordination, and core synergy with muscles that move limbs. After extensive research of national soccer programs it was concluded that pickup games should be encouraged at the grass-roots level, because they've been de-emphasized in the trend toward over-coaching in American soccer.



No sport has shifted as much as hockey, away from the spontaneous, creative sport it was, toward a highly structured game of Xs & Os.

Fearful coaching could ruin our sport!

*I'm not referring to the NHL. Coaches have to do whatever it takes to win at that level. But this is the case at the youngest ages and up through college hockey. In the same period, football has shifted toward highly creative offensive attack, while hockey has moved significantly in the opposite direction. Dump-and-~~chase~~ **trap** hockey has become the norm.*

***Over-control** by coaches in practices and games, meaning restrictions on creativity have changed the character of the game for the worse. The 'error' part of trial-and-error scares hockey coaches into conservative game plans, while in other sports it simply means that execution must improve through practice. We restrict the potential plasticity of a child's brain when we insist: "Keep it simple; do what I say; dump the puck rather than attacking with imagination and deceptiveness."*

***Neuromuscular plasticity** is also restricted when the learning environment is mostly drills with a specific, designated task (skate to the cone, turn to the left; skate to the slot; shoot). We must include more adaptation to the chaotic obstacles of PLAY, in which skills are matched in appropriate ways to unknown challenges. **Reactivity** (while maintaining balance and speed, like cutting sharply or spinning off a check) is a fundamental athletic skill that is not learned in a structured drill environment.*

Hockey, the sport with the fastest decisions, requires training that includes random obstacles and creative decisions, not just instructions and cones.







Speed
Quickness
Agility
Core synergy & stability
Coordination
Unpredictable adjustments
Read-react decisions
Teamwork, Interdependence, Synergy

Endurance = maintaining the above

To skate year-round or not? Good question.

The answers are age-dependent, quite different for pros than for children-adolescents.

(1) What about overuse injuries from skating year-round?

Many therapists and physicians claim that year-round skating increases the likelihood of groin and hip injuries. This is true for NHL players, but not as likely in youth hockey. Groin-hip injuries in the NHL are exacerbated by overuse. The schedule of games, practices, travel, and lack of sleep requires several weeks of recovery when it ends. Skates should be tossed in the closet for awhile, and muscle strains from starting up later in the summer can be prevented with skating specific exercises (like the slide-board), sprints, and hills off-ice.

For children and adolescents, overuse is not causing an epidemic of injuries. The range and speed of motion for skating is so extreme, that skates should not be put on the shelf for more than a month at a time. Skating practice is highly productive in the summer, and some of it should be done without shoulder pads and hockey pants, because they restrict the range and speed of motion. Speed skaters would never think of limiting the width of their stride in practice.

(2) Isn't Cross-Training a great way to develop hockey athleticism?

Yes, especially for children. Adding a wide variety of athletic movements – playing other sports with different physical and mental challenges is a great development plan as well as a lot of fun. Sprinting, jumping, cutting sharply, and making split-second read-react decisions in other sports gives the CNS a diverse background that enhances speed and skill training in later years. Cross-training does NOT require that you stop skating.

Besides the diverse physical challenges in other sports, creative decision-making abilities are developed. Too often, winter hockey coaches restrict trial-and-error and creativity in games, because of the exaggerated importance of win-loss records. ***Summers can fill that void.***

(3) Is a young player left in the dust if others are playing more hockey?

The decision shouldn't include imaginary factors like, "What if I get behind in hockey, and someone else is working toward a college scholarship eight years from now by competing or taking hockey lessons in June?"

Enjoy being a kid. Leave career worries for a later age when serious training can do something about your long-range goals. You don't have to play hockey all the time, but it is not harmful to do so if it increases your passion for the game. You will never get behind if you're playing active, competitive sports.

(4)Does year-around hockey lead to'Burnout?'

No one is ever burned out from hockey itself. Burnout occurs when experiences are negative, and coaching style is boring or judgmental. Hockey is the most fun of all sports, because of the speed of decisions and intrinsic skills: skating speed and maneuverability; magical stickhandling, deceptive passing, cool plays and highlight goals. Ifcoaches remove these from the game, kids are turned off in a hurry. How much fun are constant warnings by fearful coaches? "Keep it simple. No turnovers. Get it deep. Stop trying to be Quinn Hughes"

But .... playing like Quinn Hughes is everyone's dream.

Hockey moves toward burnout when winning matters more than development and fun.

We have to reject the model from the NHL and college to emphasize mistake-free hockey. Trial-and-error followed by Trial- and-success is the best teacher. At younger ages the priority must be skills, creativity, and experimentation. Burnout occurs when you're told to keep it simple; when imagination is replaced with a rigid system of Xs Os; when you stand in a long line waiting to try a skill; or sit forever in the players' box, because there are too many players on your team.

Hockey doesn't cause burnout. Sitting on the bench does.



Is Confidence the Top Priority in Youth Hockey Development?

In sixty years of coaching I've heard that competitive grit is the most important factor in success – or rink sense – stick skills – skating. And I can't disagree with any of those viewpoints. However, there is no improvement – no FUN – in any sport without confidence. And, it is the hardest thing to coach, because it requires some success for a player to become more confident.

So, why do we coaches destroy confidence?

Why do we get angry? Does a math teacher get angry when a student makes a mistake? Is it necessary to correct each mistake more often than to reward small successes? Is patience the most important coaching skill in our profession?

And how about lack of effort – or the perception that effort is always the problem? Somehow, we feel totally justified to berate poor effort with the sharpest of insults. Stop. Think before acting. Is there a reason for a poor outcome, just as there might be in the classroom? Insults are not a constructive tool for a teacher, but tradition allows – actually expects – a coach to address poor results with the nastiest rant possible.

In a recent TV game in which one team gave up three goals in a period, the announcer declared the coach should go in the locker room and ream the team out for poor effort. Was it effort? The goaltender gave up three; none were his fault.

The refs contributed; the coaches made some poor line-changes, or demanded a defensive shell. Team defense just didn't match the 3 awesome offensive plays that were highlights of the week. It happens.

Nonetheless, the coach was expected to throw a fit between periods. It just had to be a lack of effort, because ... well ... because, "I'm mad."

What if we coached confidence with the same passion we bring to the rink for skills, or power play, or D-zone coverage? We watch NHL coaches pull the notebook out of their pocket, and I wonder if any of them is making notes of a subtle good play that doesn't get noticed.

Did a Dman finish a check or make a good breakout pass, but didn't get an assist? Did a forecheck create a turnover that didn't lead to a goal, but will in the future?

Building confidence is a full-time coaching project. Every step toward success is a gift, because little successes build confidence. Elite players experience it automatically; this increases poise with the puck, and leads to more success.

But weaker players need to be rewarded when they do little things right, because they aren't capable – yet – of the automatic reward from scoring a highlight goal. This is where the truly great youth coaches earn their stripes –

not winning championships.

The most important teacher is the game itself.

Toss out the puck, and let them play. Pond hockey pickup games, keep-away competitions, scrimmages on 'rinks' of various sizes. Low-stakes games that promote trial-and-error, with no consequence for errors.

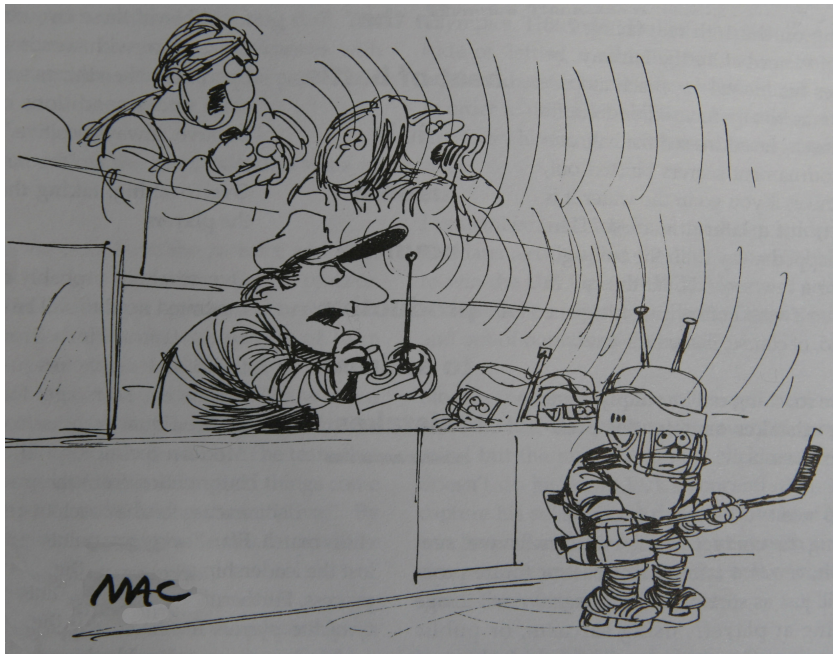
Another obstacle is the Scoreboard

In 'high-stakes games' (What youth game is low-stakes?) trial-and-error doesn't work for weaker players, because they're destined to make errors.

No one wants to make a mistake that costs the team in a 'big game.' And of course, well-meaning adults work overtime to promote the 'bigness' of each game. So, weaker players avoid loose pucks, and get rid of it quickly if it ends up on their stick.

After watching a pre-game squirt warmup, I picked out a particularly weak player, and followed his experience for an entire game. He touched the puck seven times, batted it north as quickly as he could, had it on his stick for a total of 5 seconds (maybe less; not easy to quantify), never completed a pass, and made one shot.

For making no glaring mistakes, and getting off the ice quickly to let the good guys on, he was patted on the back. It didn't seem the coach was a tyrant who'd yell about mistakes; so the scoreboard was apparently the obstacle to learning and fun.



Cartoon reprinted from a previous book Overspeed
Courtesy of: Craig MacIntosh,
Minneapolis Tribune editorial cartoonist.

Mac got it right!

Scrimmage, Scrimmage, Scrimmage

"It's impossible to beat a high-tempo scrimmage," said Ben Smith, an assistant coach for men's Olympic and National teams and head coach for several medal-winning women's teams, one of which was an Olympic Gold medal. "There's a lot of skills and decisions – a lot of hockey going on in a scrimmage. It's an important part of practice planning."

The 1988 men's Olympic Team was touring around the country, and at one stop we did a sample practice for youth coaches. Dave Peterson, the head coach, addressed 100 coaches while Ben and I ran the demonstration practice. We asked what kind of drills he wanted. "No drills," he said. "Just scrimmage, so the coaches can see creativity at Overspeed." Some in this position might think they need to show clever drills for youth coaches, but Coach Pete wanted to reinforce a lesson: don't shy away from scrimmaging, just because 'The Book' says to do drills. I've watched drills at all levels, and quite often the players were bored to death. I've never seen boredom in a scrimmage.

Competition ignites the fire that burns in every hockey player.

Small area games or competitive drills that require skills and decisions to fit the situation are excellent. I like scrimmages: full-ice, half-ice, cross-ice, small rinks, 4-on-4, one-touch, and scrimmages with rules designed to teach a lesson of the day. Example: a wild-card player-coach (different color jersey) jumps in to give the team with the puck an advantage. He 'teaches' by rewarding anyone who passes to him, then immediately moves creatively, perhaps to a scoring position or just to open ice.

Scrimmages double the playing-time

When you rent ice for a 'big-time' official game the puck is in the hands of the official 52% of the time. Well, I count the warmup in this stat, because players are doing nothing with game-like passion. In a scrimmage, with limited face-offs, the puck is in play almost the entire rental time after warmup.

Scrimmages can be a cardiovascular stimulus

A youth hockey game might raise blood pressure because of stress, but frequent faceoffs ruin the chance for cardiovascular fitness training. On the other hand, if it is an Overspeed Scrimmage without stoppages, and coaches are on the ice pushing the pace, it can be a great conditioner. It's hard to believe we continue the tradition of tournaments and 'big' games.



Development = Skills + Creativity + Athleticism + Passion

In a lifetime, I've not seen a hockey lesson that compares to scrimmage. There is nothing like playing this wonderful game for no greater stakes than 'Pride and Prestige.'

Scrimmage and Pond Hockey are truly Hockey's greatest teachers



Photo courtesy of Steve Myrland