



Physical Development for the Hockey Athlete

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About Me

Endeavor Sports Performance (Pitman, NJ)

- Team Comcast Tier I Youth Organization
- New England Prep
- EJHL, USHL, BCHL, OHL, etc.
- NCAA Div III & I
- ECHL, AHL, NHL




San Jose Sharks (Prospect & Pre-Season Camps)
USA Women's National Team

The Importance of Training

Primary Goal 1: Performance Enhancement

A *quality* training program will help players improve:

- Linear and transitional speed
- Multi-directional power
- Lower, upper, and total body strength
- Core strength and function
- Conditioning/Endurance




The Importance of Training

Primary Goal 2: Injury Resistance

A *quality* training program will minimize your risk to:


- All non-contact or "overuse" injuries
 - "Groin" and hip flexor strains
- Contact injuries (Body Armor)
 - Shoulder separations/ dislocations, knee ligament injuries (ACL & MCL tears, meniscus tears, etc.), and concussions



Player Outcomes


- Win more races to loose pucks
- Create more time and space
- Give and accept harder passes
- Take harder shots
- Win physical battles
- Perform at a high level from 1st through the 3rd period
- Stay healthy throughout entire season

Close "Performance Gap"/Maximize Development!



Athletic Performance Pyramid

Establishing proper movement patterns is the key to efficient performance and injury risk reduction




Movement 101

Two Major Movement Concepts:

1) Neutral Spine

- Maximizes range of motion
- Allows efficient force transfer
- Loss of neutral spine is a major reason why people get hurt squatting and deadlifting
- Push-up example



Movement 101

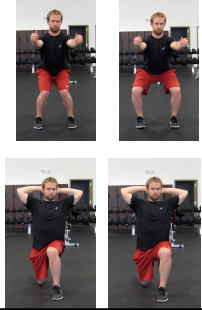
Two Major Movement Concepts:

2) Dynamic Hip Control

- Control at the hip influences position at the knee and foot (and vice versa)
- Poor control results in players riding their inside edges
- Important to maximize power and force transfer

PROPER MOVEMENT IS THE FOUNDATION

MOVE WELL BEFORE YOU MOVE MORE, FASTER OR UNDER LOAD!



Comprehensive Program "Menu"

All of these stressors should be present in a player's program...year-round!

1. Soft-tissue quality
2. Mobility/Flexibility
3. Speed/Acceleration
4. Lower body, full body, and rotational power
5. Lower and upper body strength
6. Multi-directional core strength/endurance
7. Conditioning/Endurance



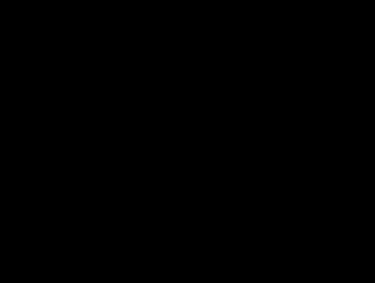
Soft-Tissue Quality

Foam Rollers/Med Balls/Lacrosse Balls

- Soft-tissue refers to your muscles, tendons, ligaments, and surrounding tissue
- Rubber Band Analogy (Is stretching the answer?)
- Decrease tension and troubleshoot trigger points
- Improve local circulation and nutrition
- Areas to focus on: front thigh, outside thigh, back thigh, inside thigh, outside hips, inner shoulder blades, outer shoulder blades

TIME: ~5-8 minutes/day

Foam Roll Circuit



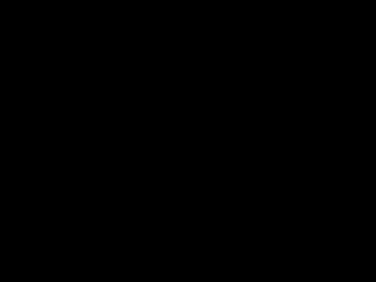
Dynamic Warm-Up

Benefits of a quality warm-up

- Improve range of motion, especially in commonly restricted areas
- Increase heart rate and circulation
- Increase respiratory rate
- Increase excitation to working muscles
- Improve coordination in specific movement patterns


Prepare the body for high intensity work!

Dynamic Warm-Up



Speed Training

Are we after "Quick Feet"?



The Myth of Quick Feet

What happens when these two meet?



REAL Speed Training

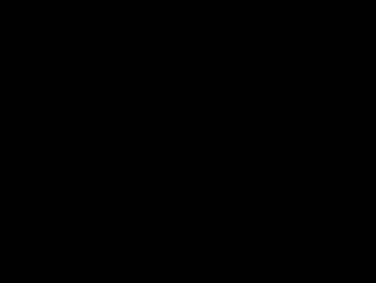
Relocate quickly by moving center of mass!

Linear Speed (breakaway and back-checking speed)
-Straight line acceleration and max speed


Transitional Speed (everything else)
-Changes in speed, position and/or direction
-Initial movement of shuffle, back pedal, or sprint, followed by transition of 90° or 180°

10-15 Yard max effort sprints with complete rest!

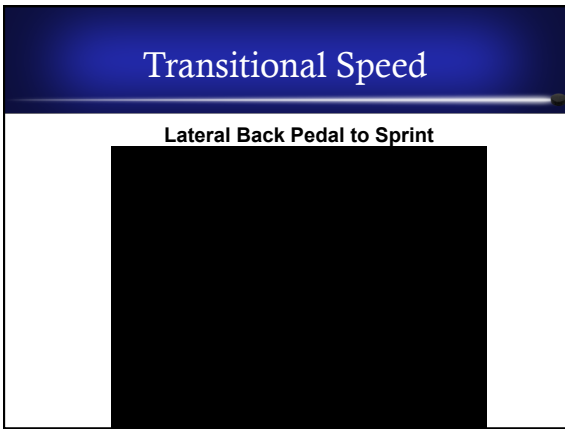
Front ½ Kneeling Start

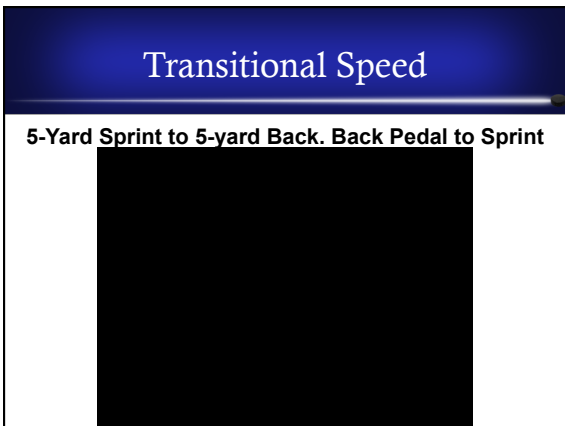


Side ½ Kneeling Start









Power Training

Divisions of Power Training

Lower Body Plyometrics

-Skating speed

Olympic Lifting Variations (High Load/Low Velocity)

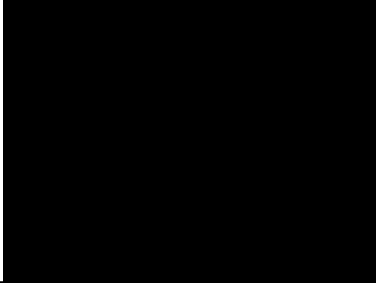
-Skating speed, shot power, 1-on-1 battles

Med Ball Throws (Low Load/High Velocity)

-Skating speed, shot power

Lower Body Plyometrics

Lateral Bound



Olympic Lifting Variations

Hang Clean



Med Ball Throws

Med Ball Shotput w/ Rapid Step Behind & Partner Toss



Strength Training

Become brilliant at the basics!

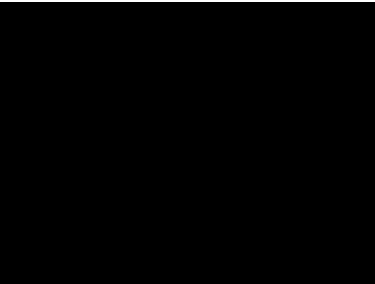
Master the foundational movements

- Lower body push (squatting variations)
- Lower body pull (deadlifting variations)
- Lower body hybrids (lunging variations)
- Upper body push (push-up and overhead press variations)
- Upper body pull (row and chin-up variations)

Strength Training Rules

- 1) Master the movement before you add load
- 2) Technical Failure: When form breaks down, the set is over
- 3) Balance lower and upper body pushing and pulling exercises (or err toward more pulling)
 - e.g. 3 sets of 8 DB Chest Press = 3 sets of 8 1-Arm DB Rows

Reverse Lunge (Front Squat Grip)



DB 1-Leg Stiff-Legged Deadlift



Core Training

Two Primary Functions

Create a stable platform for leg and arm movement

- "Can't shoot a cannon from a canoe"

Create stiffness for efficient force transfer between the lower and upper body

- Shooting/skating stride power

The "core" includes every muscle that attaches to the hips or spine

Front/Side Planks

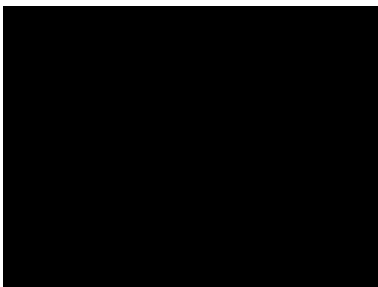


Start here and progress to more difficult variations (e.g. 1-leg, marching, dynamic movements)

Wall March Hold



Lateral MiniBand Walk




Conditioning

Interval-Based Conditioning

Preferred Modalities

- Shuttle Runs/Slideboards (NOT bikes!)
- 12-15 x :10/:50
- 10-12 x :15/:45
- 8-10 x :30/:60
- IsoHolds
- 20-60s



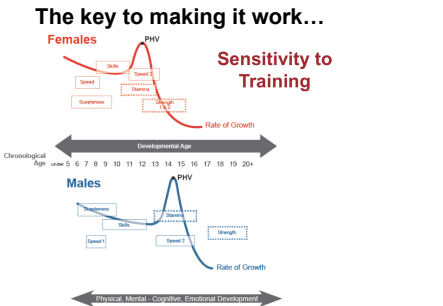
Split Squat IsoHold to Slideboard (Advanced)



Long-Term Athletic Development

The key to making it work...

Sensitivity to Training



Player Development Stages

Sensitivity Periods	Females	Males
Suppleness	5-10	6-10
Speed 1	6-9	7-9
Skills	8-11	9-12
Stamina	10-13	13-16
Speed 2	11-14	13-16
Strength	12-16	17-20+

Players at every age and level can improve all of these qualities, but development can be accelerated during these windows.

Why Not JUST Speed & Conditioning?

Most physical qualities compliment each other

Strength-Speed Example:

- Speed = Putting Force into Ice
- Force = Strength
- Improve Strength = Improve Speed
- Strength Training = Speed Training

Organization Application

Birthyear	Age	Group	Focus	Environment
2003	8-9	Group 1	Speed/Power	Fun
2002	9-10		Balance/Coordination	
2001	10-11		Flexibility	
2000	11-12	Group 2	Speed/Power	Accountability
1999	12-13		Strength	
1998	13-14		Alactic/Aerobic Conditioning	
16U	14-16	Group 3	Strength	Intensity
16U	14-16		Speed/Power	
18U	15-17		Recovery	

Players/teams grouped by age based on sensitive periods (and scheduling)

Identify training focus for each group and design program accordingly

Sample Training Day: '03-'01

1) Basic Dynamic Warm-Up (Embrace the chaos!)
2) Training Session (Below)
3) Static Stretch

Phase 1: Day 1

	Week 1	Week 2	Week 3
A) Ladder Work			
2 in 2 out Shuffle	2-3x	2-3x	2-3x
Zigzag Shuffle w/ Stick	2-3x	2-3x	2-3x
Zigzag Crossover Shuffle w/ Stick	2-3x	2-3x	2-3x
Skiier Jump	2-3x	2-3x	2-3x
B) 5 Yard Reactive Start (Tennis Ball Drop) (2-Point)	3x/1side	3x/1side	3x/1side
C) 2-5 Yard Shuttle (Tennis Balls on Cones)	3x/1side	3x/1side	3x/1side
D1) Medball Chest Pass vs. Wall	3 x 8	3 x 10	3 x 12
D2) Vertical Jump w Stick	3 x 8	3 x 10	3 x 12
E1) Low Walks Forward	3 x 15 yards	3 x 20 yards	3 x 25 yards
E2) Low Walks Backward	3 x 15 yards	3 x 20 yards	3 x 25 yards
Game) Clock 1-Leg Dynamic Balance	AMRAP	AMRAP	AMRAP

Players mimic coaches leg movements on one leg

Sample Training Days: '00-'98

1) Dynamic Warm-Up
2) Training Session
3) Static Stretch

Phase 1: Day 1

	Week 1
A1) Goblet Squat	3 x 8
A2) 1-Arm DB Row	4 x 6/side
A3) 1-Leg Glute Bridge w/ Opp. Hip Flex.	2 x (3x10s)
B1) Slideboard Hamstring Curl	3 x 6
B2) DB Chest Press	3 x 8
B3) Feet Elevated Front Plank	2 x 20s
C1) Wall/Lying Chin Tuck*	2 x (10x2s)
C2) Landmine Rotations	2 x 8/side

*First two weeks are on wall

Phase 1: Day 2

	Week 1
A1) Vertical Jump w/ Stiff Landing*	3 x 5
A2) Backward Monster Walk	3 x 25 yards
B1) Slideboard Hamstring Curl	3 x 6
B2) Loaded Push-Up	3 x 8
C1) Suspended Row	4 x 6-8
C2) Feet Elevated Side Plank	2 x 15s/side
D1) Wall/Lying Chin Tuck**	2 x (10x2s)
D2) Outside-Leg Low Load Standing Belly Press	2 x (10x2s)/side

*Reactive Drop Start
**First two weeks are on wall

Sample Training Days: 16U-18U

1) Foam Roll
2) Dynamic Warm-Up
3) Training Session
4) Static Stretch

Phase 1: Day 1

	Load	Week 1
A1) DB Reverse Lunges w/ 6s Negative	80-85%	3 x 2
A2) 1-Leg Glute Bridge w/ Opp. Hip Flexion		2 x (6x2s)/side
A3) Backward Monster Walk		2 x 25 yards
B1) DB Chest Press w/ 6s Negative	80-85%	3 x 2
B2) Feet Elevated Front Plank		2 x 30s
C1) Slideboard Hamstring Curl		3 x 8
C2) 1-Arm DB Row	80-85%	3 x 2
D1) Wall Chin Tuck		2 x (10x2s)
D2) Landmine Rotations		2 x 8/side

*All concentrics are fast

Phase 1: Day 2

	Load	Week 1
A1) Front Squat	85-90%	3 x 2
A2) Glute Bridge		2 x (6x2s)
A3) Backward Monster Walk		2 x 25 yards
B1) Chin-Up (Underhand Grip)	90%	3 x 2
B2) Feet Elevated Side Plank		2 x 20/side
C1) Loaded Push-Up		2 x 6
C2) 1-Leg 1-Arm SLDL		2 x 6/side
D1) Wall Chin Tuck		2 x (10x2s)
D2) Outside-Leg Low Load Standing Belly Press		2 x (10x2s)/side

*All concentrics are fast

In-Season Considerations

-In-season training should differ significantly from the off-season

- Young kids are an exception (not as much wear/tear)

-In-Season Training is “Anti-Hockey-Specific”

- What qualities are trained on the ice?
 - Speed, low load/high velocity power, lactic conditioning
- Train complimentary qualities off the ice
 - Mobility, high load power, strength, stability

What About Goalies?

Ask yourself these questions:

Do I want my hips and shoulders to be more mobile?

Would being faster, stronger, and more explosive be beneficial?

Would these qualities also be beneficial for forwards and defensemen?

How do I develop these qualities?

Thank You

Andy Gojdzyc & Mike Lichtenberger

Jim Hunt, Joe Doyle & All of USA Hockey's ADM Team

Mike Boyle



Mike Potenza

Staff and Athletes at Endeavor Sports Performance

Hockey Coaches

Hockey Parents

All of you!

Questions?

Email:
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Videos:
www.youtube.com/HockeyTrainingCoach
www.youtube.com/EndeavorPerformance

Information:
www.KevinNeeld.com www.UltimateHockeyTraining.com
www.EndeavorFit.com www.HockeySC.com



3 Keys to Successful Nutrition

1) Eat real food

Real food can be hunted or grown

Ask yourself: "Was this accessible to a caveman?"

Most of your diet should come from lean meats, eggs, fruits, vegetables, nuts, and beans

Avoid the aisles at the grocery store



3 Keys to Successful Nutrition

2) Eat often/eat enough

Can't gain weight?

Cereal: ~160 calories/serving


Maintenance Calories: 16-18 x BW (lbs)

Weight Gain Calories: 20-22 x BW (lbs)

140 lbs = 2,800-3,080

150 lbs = 3,000-3,300

4 meals = ~750-850 calories/meal



3 Keys to Successful Nutrition

3) Stay hydrated

Most of you are in a mild state of dehydration at all times

Impaired physical & mental performance

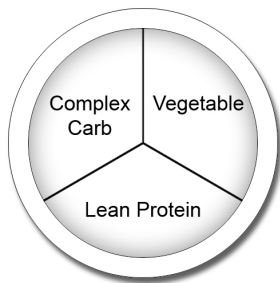
Drink WATER, 12-16 cups/day

Buy a water bottle and drink throughout the day

Mix in pure lemon or lime juice for taste



Pre- and Post-Game Meal



Grocery List: Proteins

- 1) Chicken or turkey breast, boneless and skinless
- 2) Lean ground beef, buffalo, chicken or turkey
- 3) Lean red meat (top round, sirloin, London broil)
- 4) Omega-3 eggs
- 5) Wild Alaskan salmon
- 6) Yogurt, plain

Grocery List: Vegetables & Fruits

- 1) Asparagus
- 2) Baby carrots
- 3) Baby spinach
- 4) Bell peppers
- 5) Broccoli, cauliflower
- 6) Cucumbers
- 7) Mixed frozen vegetables
- 8) Onions
- 9) Tomatoes
- 10) Apples
- 11) Bananas
- 12) Berries, fresh or frozen
- 13) Oranges
- 14) Pineapple

Grocery List: Grains & Carbs

- 1) Beans (black, chick peas, kidney, lentils)
- 2) Steel-cut/Irish oats
- 3) Quinoa
- 4) Sprouted grain breads, English muffins, wraps or cereal (Ezekial brand)
- 5) Sweet potatoes

Grocery List: Healthy Fats

- 1) Extra virgin olive oil
- 2) Guacamole
- 3) Mixed nuts (almonds, walnuts, pecans, cashews, pistachios, brazil)
- 4) Natural peanut/almond/cashew butter
- 5) Pesto from extra virgin olive oil
- 6) Seeds (chia, hemp, milled flax, pumpkin, sunflower)

The Secret to Making It Work

Make eating the right foods convenient!

Pre-cook meals for the week on Sunday night and put them in tupperware

Pre-bag individual snack bags with nuts, seeds, and cut up fruits/vegetables

Make breakfast omelette or smoothie the night before, so you can sleep in

Reese's Smoothie (2 servings)

16 oz organic whole milk

2 scoops chocolate protein

2 bananas

2 tbsp milled flax seeds

2 tbsp cacao nibs

3 tbsp natural peanut butter

1 cup frozen mixed berries



Nutrition Information (Total): >1200 calories, >60 g protein, >36 g fat, >90 g carbs, >20 g fiber
