

# **RVHS Hockey**

# **2019 Individual**

# **Training Guide**

**Courtesy of:**



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### **The Merits of Hockey Specific Training**

In 1988, Joe Sakic was named the Canadian Major Junior Player of the Year. He was awarded playoff MVP honors and helped the Colorado Avalanche win the Stanley Cup in 1996. Sakic averaged more than 1.26 points per game. He could always contribute goals and assists, but in between Sakic's junior career and his current status as one of the NHL's elite players, he has developed into a well-rounded skill player. This can be traced back to his conditioning efforts with the Quebec Nordiques.

"As a junior, I trained a bit in weights, but only upper body. No leg work and no conditioning for things like quickness, agility or aerobic endurance," explains Sakic. "At my second junior camp I put on a little weight and did not feel great, so from then on I did not train very much. But now I know that this was because I did not train specific for ice hockey."

"In 1991, my third year, I was invited to try out for Team Canada for the Canada Cup Tournament. At the end of the camp I was told that I needed to improve my leg strength. Going into my fourth year, I met Lorne Goldenberg, conditioning coach for the Nordiques. Lorne explained to me the importance of developing the legs for hockey, as well as how to train specifically for my sport," Sakic explains, *"I worked hard that summer for the first time in my career and as a result of Coach Goldenberg's conditioning program I felt great for the first time in training camp. I was faster and quicker on my feet. I did not feel as fatigued in camp as I had in previous years."*

Sakic's development is evident in his six consecutive NHL All-Star team selections and his gold medal in 1994 at the World Championships. "Joe is one of those few highly skilled players who could probably get by on just skill alone," says Goldenberg. But the key is that Sakic doesn't just get by, he tries to get the best performance possible from himself. "Joe's body weight fluctuates between 180 and 185 pounds. He is squatting over 400 pounds and he is bench pressing over 300 pounds, and is always at the head of the pack in our plyometric tests," says Coach Goldenberg. "It is this combination of strength, speed and power that allows this small, skilled player to play with the strength of a power forward, and the speed of one of the quickest skaters in the NHL. "These attributes, and his overall development were obvious to everyone following his dominance in the 1996 Stanley Cup playoffs.

# SELF-TRAINING CALENDAR

## 15 Week Program

STP	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<b>WK 1</b> <b>Phase 1</b>	Warm-up/Stretch Lift – Phase 1 45 Min Aerobics	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Plyometric's (Moderate Intensity)	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Lift – Phase 1 Anaerobic Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 2</b> <b>Phase 1</b>	Warm-up/Stretch Lift – Phase 1 45 Min Aerobics	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Plyometric's	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Lift – Phase 1 Anaerobic Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 3</b> <b>Phase 1</b>	Warm-up/Stretch Lift – Phase 1 45 Min Aerobics	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Plyometric's	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Lift – Phase 1 Anaerobic Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 4</b> <b>Phase 1</b>	Warm-up/Stretch Lift – Phase 1 45 Min Aerobics	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Plyometric's	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Lift – Phase 1 Anaerobic Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 5</b> <b>Phase 1</b>	Warm-up/Stretch Lift – Phase 1 45 Min Aerobics	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Plyometric's (Moderate Intensity)	Warm-up/Stretch Lift – Phase 1 Agility Workout	Warm-up/Stretch Lift – Phase 1 Anaerobic Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 6</b> <b>Phase 1</b>	Active Rest	Active Rest	Active Rest	Active Rest	SELF TEST 1	OFF	OFF
<b>WK 7</b> <b>Phase 2</b>	OFF	OFF	OFF	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Lift – Phase 2 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 8</b> <b>Phase 2</b>	Warm-up/Stretch Lift – Phase 2 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Lift – Phase 2 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 9</b> <b>Phase 2</b>	Warm-up/Stretch Lift – Phase 2 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Lift – Phase 2 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 10</b> <b>Phase 2</b>	Active Rest	Active Rest	Active Rest	Active Rest	SELF TEST 2	OFF	Active Rest
<b>WK 11</b> <b>Phase 3</b>	Warm-up/Stretch Lift – Phase 3 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 3 Anaerobic Workout	Warm-up/Stretch Lift – Phase 3 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 12</b> <b>Phase 3</b>	Warm-up/Stretch Lift – Phase 3 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 3 Anaerobic Workout	Warm-up/Stretch Lift – Phase 3 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 13</b> <b>Phase 3</b>	Warm-up/Stretch Lift – Phase 3 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 3 Anaerobic Workout	Warm-up/Stretch Lift – Phase 3 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 14</b> <b>Phase 3</b>	Warm-up/Stretch Lift – Phase 3 45 Min Aerobics	Warm-up/Stretch Lift – Phase 2 Anaerobic Workout	Warm-up/Stretch Plyometric's Agility Workout	Warm-up/Stretch Lift – Phase 3 Anaerobic Workout	Warm-up/Stretch Lift – Phase 3 Agility Workout	Warm-up/Stretch Plyometric's	Active Rest
<b>WK 15</b> <b>Phase 3</b>	Active Rest	Active Rest	Active Rest	Active Rest	SELF TEST 3	OFF	Active Rest

# Hockey Nutrition

# HOCKEY NUTRITION

A well-balanced diet will provide all the nutritional and caloric needs of an individual. Since hockey players are constantly burning off calories and breaking down tissue, the food they need is food that supplies all the nutrients necessary for repair, growth and energy. The foods in a well-balanced diet fall into four major groups: milk group, meat group, fruit/veggie group, and grain group.

These food groups fulfill the body's needs for protein, fat, carbohydrates, vitamins, and minerals, which are the basic nutrients needed by the body. For athletes such as hockey players, carbohydrates would be the major source of intake, at least 50%, followed by protein and fat intake. On the average, the basic diet should consist of approximately 10-20% protein, 20-30% fat and 50-70% carbohydrates.

Protein is found throughout the body and serves numerous functions:

- a. Maintain and repair body tissues
- b. Make hemoglobin that fight infection and disease
- c. To supply energy during starvation
- d. Form antibodies that fight infection and disease

Fat is also found through the body and serves several functions:

- a. Insulates nerves and body tissue
- b. Forms the cell walls
- c. Protects internal organs
- d. Concentrated source of energy

## DAILY ENERGY RECOMMENDATIONS FOR NORMALLY ACTIVE MALES

Males Age (Years)	Energy Needs	
	Total Energy Kcal	Calories Per Pound
11-14	2700	27
15-18	2800	19
19-22	2900	19
23+	2700	18

To determine actual caloric needs, refer to the chart "Daily Energy Recommendations For Normally Active Males" above. In addition to these basic requirements, the hockey player will need to keep track of additional calories consumed during training and add these to the basics.

Hockey players should allow about 600-800 Kcal per hour extra for caloric expenditure. So if a 19-22 year old 200 lb. Hockey player plays intensely for 2 hours, he would determine his age related daily energy expenditure (200 lb. x 19 Kcal = 3800 Kcal), then add approximately 1600 Kcal (800 Kcal/hr.) to compensate for exercise expenditure for a total of (3800 Kcal + 1600 Kcal = 5400 Kcal).

To insure that an athlete is meeting both nutritional requirements as well as maintaining adequate hydration levels, they should be weighed daily prior to breakfast, post urination and without clothing. This will insure accurate and consistent measurements by minimizing error.

The spacing and number of meals per day is also a major factor associated with hockey players. Research suggests that eating fewer and larger meals (2-3 per day) impairs glucose tolerance and increases body weight and fat content.

It is suggested that athletes eat 3 moderate meals-breakfasts, lunch and dinner-and interspersed among these meals are 3 snacks in order to increase the consumption of added calories required for training.

The best way to obtain all the required nutrients is to eat a well-balanced diet. For athletes requiring excess calories to facilitate training/competition, eating larger portions and snacks that are well balanced will also allow proportional increases in nutrients.

## **How to Gain Quality Weight**

### **Basics:**

1. There are two ways to gain body weight:

- a. Consume more calories than you burn off (diet)
- b. Burn off fewer calories than you consume (less exercise)

Since we want to continue high intensity exercise, (b) is not feasible. Consuming more calories is the best way; however, the type of high calorie food is important. Constantly eating “junk” food will put weight on but not in the form of lean body weight. Fat weight is counterproductive; it costs more energy just to move it around.

Foods such as fresh fruits, grain products, and most vegetables are high in carbohydrates (and calories), but have a nutritional bonus of extra vitamins and minerals. Get your carbohydrates from these sources. Avoid foods and drugs that are non-nutritious: coffee, tea, soft drinks, alcohol, non-therapeutic drugs. Consuming these substances is like putting water in your car’s gas tank.

2. Eat at least 3 equally spaced balanced meals a day, preferably 5 meals a day or 3 meals and snacks or supplements.

3. Eat a daily adequate amount of the four basic food groups.

- a. Bread and Cereals- 4 servings
- b. Fruits and Veggies- 4 servings
- c. Meat, Fish, Eggs and Poultry- 2 servings
- d. Milk and Milk products- 2 servings

4. Eat a variety of foods. You have a better chance of getting all the necessary nutrients and variety lessens boredom.

5. Sugars are of no nutritional value and should be de-emphasized or eliminated from your diet: soda pop, candies, sugar etc...

### **Basic Weight Gain Program Tips**

1. Eat a quality breakfast.
2. Bring sandwiches such as tuna fish or peanut butter with a thermos of milk to be used as a mid-morning or mid-afternoon snack.
3. Eat a sandwich before going to bed.
4. Nutritional supplements may be used, but are not a necessity.
5. Never miss a weight-training workout.
6. Keep regular hours with plenty of rest, 9 hours is optimal.
7. Eat a couple of pieces of fruit as often as possible. 6-10 daily; each piece has approximately 100 calories of carbohydrates and nutrients.

### **Eat Breakfast**

1. Baylor University forced the football team to eat breakfast and gained 12 lbs per man.
2. You will make your early morning classes.
3. You will be more alert, more productive and react faster.
4. You are getting muscle stimulation now. You need the extra building material now.
5. You WILL gain weight.

### **Proper routine eating has a long-term effect on your health**

1. Keep away from saturated fats!
2. Keep away from animal fats! (lard, bacon fat, etc...)
3. Keep away from fats that are solid at room temperature!
5. Healthy fats are liquid at room temperature!
  - a. Bread and Cereals- 4 servings
  - b. Olive oil, peanut oil, Sunflower Margarine.
  - c. Fat takes a longer time to digest and is high in calories.

## **Important Dailey Routine Eating Habits**

### **FATS**

1. Stay away from saturated fats (beef fat, pork fat, lamb fat, butter and cream).
2. Use fat that is liquid at room temperature.
3. Fish and Chicken (without the skin) are low fat protein.
4. Red meat provides the best source of iron that is quickly depleted through sweating.
5. Eat lean red meat. ie: Filet Mignon, lean hamburger. Liver is lean and contains plenty of iron.
6. Don't eat fried foods- the food reabsorbs the fat.
7. Your diet should contain between 60-65% carbohydrates. ie: pasta with tomato sauce, lean meat sauce.
8. Use low fat cheese with Kraft dinner, noodles, lasagna or pizza.
9. Use low fat dairy products. ie: Skim milk, low fat yogurt (cheapest ice cream is the best for you because it contains lower percent of cream.)
10. The only recommended processed meat contains less than 5% fat.
11. Stay away from ham- it's high in fat and salt.
12. Buy low fat white or yellow cheese.
13. Use skim milk powder or ultra temp. milk in coffee. Coffee whitener is not recommended because it contains a high level of saturated fat ie: Coffee Mate.

## **COFFEE**

1. Coffee one hour prior to a game time can be helpful. It activates the level of free fatty acid.

2. No coffee in between periods.

## **SUGAR**

1. Avoid high sugar intake prior or during a game. This could result in a low blood sugar, fatigue more quickly (producing a drowsy feeling).

2. Drink water, non-sugared drinks during the game.

3. Diluted orange juice is a sufficient electrolyte replacement (potassium, sodium) after a game.

## **IRON**

1. Hockey players lose a lot of iron through sweating.

2. The best way to add iron to your diet is through lean red meat.

3. *Cream of Wheat* is a very good source of iron.

## **VITAMINS**

1. Unless you cannot eat or do not want to eat much or have become anemic, vitamins supplements are unnecessary.

## **CALCIUM**

1. The best way to add calcium to your diet is through skim milk, low fat cheese, low fat yogurt and cottage cheese.

## **JET LAG**

1. Cut down on the amount of salt (sodium) intake before a flight.

Cut down on:

- Chinese food with MSG
- Packaged food
- Processed meat like ham
- Hot dogs
- Instant soups
- Dip on veggies
- Bacon
- Potato chips
- Pretzels
- High fat burger meat
- Skin on chicken

## **RECOMMENDED MEALS**

### **Breakfast**

(YOU MUST EAT BREAKFAST)

1. Instant Oatmeal
2. Yogurt
3. Whole grain cereal
4. Skim milk
5. Whole grain wheat bread
6. Pancakes
7. French toast
8. Cream of Wheat
9. Fruit

### **Pre-Game Meal**

1. Fruit
2. Fresh vegetables with no salt, homemade soup
3. Salad with low calorie dressing
4. Baked potato
5. Rice (brown rice preferably)
6. Vegetables without dip
7. Complex Carbohydrates:
  - Spaghetti/fettuccini with lean meat sauce
  - Spaghetti/fettuccini with clam/tomato sauce
8. French toast
9. Pancakes (regular syrup, but low or no butter)
10. Whole wheat bread

**Avoid Fats- takes longer to digest (ham or items that are high in fat and salt).**

### **Snacks**

1. Fruits
2. Veggies without dip
3. Low fat yogurt
4. Tuna fish sandwiches
5. Low fat cheese sandwich (look for 7-11% fat cheese)
6. Popcorn without butter
7. Raisins
8. Dry roasted nuts
9. Oatmeal and raisin cookies
10. Low-fat cheese Pizza
11. Low-fat Cottage Cheese
12. Instant oatmeal



## How to Lose Body Fat

### Basics:

1. You cannot “spot reduce”. If you are to lose body fat, you lose fat from all over your body-mid section, legs, arms etc...(Sweat suits, belts, etc. Do not work).
2. There are two ways to lose body fat:
  - a. Burn off more calories than you consume (exercise)
  - b. Consume FEWER calories than you burn off (eating modification)

### ***A Combination of exercise and proper diet should prove very efficient in reducing body fat.***

An athlete during heavy exercise periods can lose only two pounds of fat each week. If you lose more than two pounds, you are losing fat and lean body mass (muscle). There are approximately 3,500 Calories to one pound of fat.

Reduce the number of calories consumed daily by 500 and in one week's time you will lose one pound of fat (in 10 weeks; 10lbs. of fat). Reduce your caloric intake by 500 calories and add 500 calories of exercise a day and you will lose 2 pounds of fat a week (in 10 weeks; 20 lbs. of fat).

### **Other Suggestions:**

1. Eat a salad or baked potato before your meal-(watch the salad dressing, sour cream, butter, etc...). Then eat a low fat, low caloric meal.
2. Do not “clean your plate, eat only until satisfied.
3. Ride or jog. LSD (long-slow-distance) burns body fat. An extra 30 minutes a day of riding or jogging will pay big dividends on the ice.
4. Never miss a workout.
5. Do not eat before going to bed at night.

### **\*Remember\***

**An athlete with a large percent of muscle as well as  
a small percentage of body fat will perform more efficiently.**

# Flexibility Training

## **FLEXIBILITY**

Flexibility refers to the ability to move body parts around a joint, through its full range of motion (R.O.M.). Many exercise programs do not provide adequate flexibility, and run the risk of future injury. Flexibility can be improved through a systematic daily stretching routine, which should be done BEFORE and AFTER any workout or exercise bout. Flexibility exercises are designed to stretch certain muscles and reduce the likelihood of injury to the myo-tendon unit.

Stretching before activity is essential for immediate gains in flexibility and safety, but the best time to stretch for long-term gains in flexibility is after games, practices and training sessions. Following activity, a muscle's temperature is at its highest, allowing for easier stretching. Stretching after activity also reduces delayed muscle soreness and helps your muscles recover from exercise.

A common myth holds that strength and lean muscle mass gains decrease flexibility. However, if a muscle is stretched on a regular basis gains in both areas can be achieved.

*A case in point was Shawn Antoski on the Vancouver Canucks.*

*At 246 pounds, he had the largest muscle mass and was the second strongest player.*

*He was also the fastest and by far the most flexible, even more flexible than the goaltenders.*

### **Hockey Specific Flexibility**

Areas of the body of special concern to hockey players, when it comes to flexibility, are the hamstring and the lower back region. Skating is a bent leg activity and few players actually fully extend their rear leg when pushing off each stride and as a result the hamstrings are rarely stretched to their full length.

*If muscles are not used to their maximum length, they will shorten which over time will lead to back injuries or groin pulls. Increased flexibility at the hips, groin, hamstrings and thighs will not only prevent injury but will also improve skating speed and agility.*

Special preventive attention is needed in the lower back region because hockey players skate with a slight back flexion, which places demands on lower back strength and flexibility. Without specific preparation, the lower back will not withstand the continual isometric contraction of the back extensors in the skating position or the stressful twisting actions that occur during a game, such as a forceful truck rotation when shooting. Fighting through checks and warding off opponents also places a lot of stress on the lower back region.

### **Remember these Stretching Points**

1. *Always warm-up a muscle for 5 to 10 minutes before stretching.* Stretching a cold muscle can cause minor muscular damage and decrease flexibility. The warm-up increases the deep core muscle temperature, improving the muscle's elasticity and lubricating the joint.

2. *Isolate the muscle to be stretched with very strict technique.* Do not "cheat" and alter the exercise slightly just to stretch farther.

3. ***Move slowly and smoothly through the stretch.*** Fast movements will cause the muscle to contract (to protect itself). Receptors within your muscles where they attach to bones can sense the rate of lengthening. If the receptors sense a rapid lengthening, they will tell the muscle to contract, to protect itself from lengthening too fast.

4. ***DO NOT OVER STRETCH*** – Most athletes try to stretch as far as possible, straining to move farther into the stretch. This may seem logical, but the receptors in your muscle and at the muscle tendon attachment also sense how far the muscle is being stretched. Straining a joint beyond its range of movement only causes the muscle to contract to protect itself from being stretched too far. Stretching across a contracted or tight muscle ultimately leads to the formation of inelastic scared tissue. You need to stretch a relaxed muscle, not a contracted muscle. Hold the stretch in a comfortable position. You should feel only a slight tension in the muscle, which should subside as you hold the position. If it does not subside, back off to a more relaxed position.

5. ***Hold the stretch in a static position without bouncing or moving.*** Remember – stretching a muscle too quickly, bouncing or holding a stretch as far as you can go causes an involuntary muscle action, which tightens the very muscles you are trying to relax and stretch.

6. ***Hold each stretch for a minimum of 30 seconds and optimally up to one minute.*** The longer you hold an easy stretch the more likely the muscle will relax and loosen.

7. ***Inhale before you move into a stretch, exhale as you move into and through the stretch and then continue to breathe normally and freely as you hold the stretch.*** If a stretched position inhibits your natural breathing pattern, you are not relaxed and are likely straining. Ease up until you can breathe naturally. Take full relaxed breaths, and NEVER HOLD YOUR BREATH.

8. ***Progress to development stretching.*** The initial “easy stretch” is designed to help relax the muscle. If your muscle was comfortable during this stretch, you can move another half inch for a longer stretch.

Move farther into the stretch until you again feel a slight tension. The tension should subside. If not, back off to a more comfortable position. As you increase the range of motion (progressing deeper into the stretch), exhale slowly.

9. ***Come out of each stretch as slowly and smoothly as you went into it.***

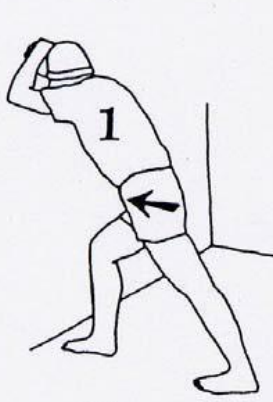
10. ***Stretch consistently.*** Regular daily stretching is needed for improvement.

### **Stretching Routine**

- The stretching routine is composed of 20 exercises.
- Descriptions and diagrams for each exercise can be found on the next page.
- The routine is to be followed for each warm-up and cool down.
- *To prevent lower back injury and to increase flexibility in this area 11 additional stretching exercises have been included. These exercises should be done in addition to the general stretching program.*

If you stretch correctly and regularly, you will find that every movement you make becomes easier. It will take some time to loosen up tight muscles or muscle groups, but time is quickly forgotten when you start to feel good.

Before and After  
**Ice Hockey**  
 Approximately 10 Minutes



30 seconds  
 each leg  
 (page 71)



30 seconds  
 (page 53)



20 seconds  
 (page 33)

**5**  
 Repeat  
 3 & 4  
 other leg



20 seconds  
 (page 36)



10 seconds  
 each side  
 (page 59)



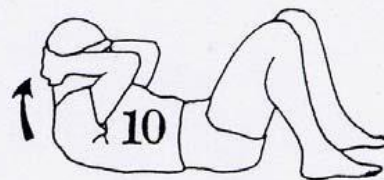
30 seconds  
 (page 56)



30 seconds  
 (page 93)



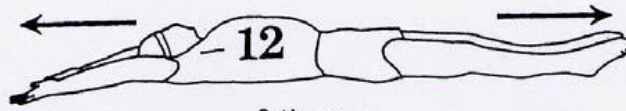
20 seconds  
 (page 24)



3 times  
 5 seconds each  
 (page 25)



20 seconds  
each side  
(page 24)



3 times  
5 seconds each  
(page 28)



20 seconds  
(page 65)



10 seconds  
(page 47)

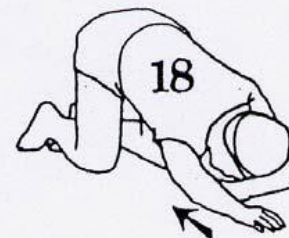


20 seconds  
(page 48)

**16**  
Repeat  
14 & 15  
other leg



20 seconds  
(page 40)



10 seconds  
each arm  
(page 40)



15 seconds  
each arm  
(page 43)



10 seconds  
each side  
(page 42)



For

# Lower Back Tension

Approximately 4 Minutes

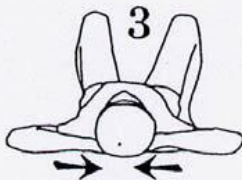
These stretches are designed for the relief of muscular low back pain and are also good for relieving tension in the upper back, shoulders and neck. For best results do them every night just before going to sleep. Hold only stretch tensions that feel good to you. *Do not overstretch.*



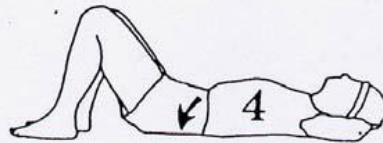
30 seconds  
(page 24)



15 seconds  
each leg  
(page 28)



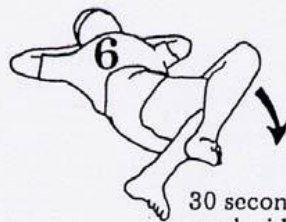
shoulder blade pinch  
2 times  
8 seconds each  
(page 26)



flatten lower back  
2 times  
10 seconds each  
(page 27)



3 times  
5 seconds each  
(page 25)



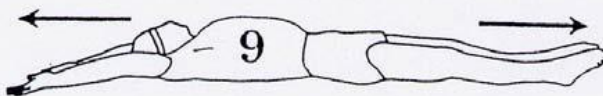
30 seconds  
each side  
(page 24)



30 seconds  
(page 24)



20 seconds  
each side  
(page 24)



2 times  
5 seconds each  
(page 28)



25 seconds  
(page 29)



(page 30)

# Strength Training



## STRENGTH TRAINING FOR HOCKEY

The goal of our weight and conditioning program is to make you a better hockey player by improving your functional capabilities. We are not interested in building a competitive power lifter or body builder, even though increased strength is certainly a benefit. The bigger, stronger, faster, more powerful the athlete, the better are his chances of success in hockey.

A solid base of strength and lean muscle mass supports a player's physical abilities and technical skills and is a prerequisite to anaerobic conditioning, power, quickness, agility, and speed. Strength assists such skating skills as acceleration, cornering, stopping and starting, pivoting, shooting, and dynamic balance. Increased size and strength are also important for body checking and defending opponents.

**Upper-body strength** contributes to shooting and puck control as well as warding off opponents. Strength through the chest, shoulders, arms and back is used during body checking, to clear the slot or when containing your opponent against the boards.

**Leg Strength** is important to skating strides, acceleration, turning, and stopping. It contributes to first-step leg power for a strong push off and anaerobic endurance for repetitive strides. Successful body checking also relies on strong legs. Weight shifts upward during a body check, with 75% of the power coming from the legs. High leg muscle mass lowers the body's center of gravity assisting dynamic balance as well as stability. This enables a player to skate through resistance from opponents. Lowering the center of gravity also allows a player to bend their knees more to make tighter turns. A player with a big upper body and no legs will fall over in tight, high-speed turns.

**Torso Strength** serves as the body's base as it is the pillar from which all movement stems. The torso initiates, assists, and stabilizes movement. Every on ice action relies on the abdominals, lower back and hip region. Every stride, from the drive phase to the recovery phase, relies on torso strength. Quick turns and directional changes on the ice come from the legs, lower back, abdominals and hips. All on-ice strength, power, speed, quickness, and agility stem from the torso out of the legs and arms.

***Remember, if some is good, more is NOT better. This applies to weight training too!  
Over training causes performance to suffer, lost time, fatigue and injuries.***

**Strength is the Key element in:**

- a. **Power-** As our brilliant engineers will tell you  $\text{Power} = \text{Strength}/\text{Time}$ . A more powerful athlete can start and stop quicker, hit harder, and dominate opponents.
- b. **Speed-** Speed is highly correlated with specific strength.
- c. **Agility-** Our body control is aided by strength. Strong hips and legs allow the athlete to start, stop and change directions quickly.
- d. **Injury Prevention-** The stability of a joint is enhanced by the strength of the muscle that surrounds the joint. Research indicates that the strength of bones, ligaments and tendons is improved through strength training. Well-trained muscles, when injured, respond much faster to rehabilitation than a lesser-trained muscle.

## **Tips for Weight Training**

**Evaluate your Training Facility-** This will dictate which exercises and how many exercises in your program you will be able to do. Use the equipment that is available in your local area. If you don't have weight machines, you will have to adjust and use free weights or vice versa. If you do not have either free weights or machines you will have to perform manual resistance.

**Sets and Reps-** A "rep" is defined as one complete movement from starting point back to starting point. A group of continuous reps are known as a "set". Our lifting program will generally begin with low reps and heavy weight, which is best for muscle strength and power, then proceed to high reps with moderate weight, which will build local muscular endurance. As you gain strength, you must progressively increase the weight being lifted.

**We would like to see 5-10 lbs. increased bi-weekly in the amount of weight lifted.**

**Technique and Breathing-** Pay close attention to proper techniques for each exercise (see section following this). You will not only maximize your lifting potential, but minimizing the chance of injury. Avoid breath holding during lifting exercises.

*The general rule is- breath OUT on the hard part of the exercise, breathe IN on the easy part of the exercise. Never hold your breath while doing an exercise.*

**Warm-up and Flexibility-** Warm-up before exercising; light jogging or rope jumping are sufficient. You should perform 10 to 15 minutes of warm-up before stretching. Following the warm-up you should perform the stretching routine as stated in this booklet.

**Exercise All Major Muscle Groups-** Do at least one exercise for each major muscle group (i.e.: Quads/Buttocks/Chest/etc.) Work your largest muscle masses first (buttock/back/quad) and proceed to the smallest (calves, forearms). Alternating upper and lower body parts may help you recover between sets.

**Regularity of Exercise-** Your body needs 48 hours of rest between intense exercise bouts for recovery.

**INTENSITY is the Key to Weight Training-** Conditioning improvements are directly proportional to the intensity with which you train. Train with someone who will motivate you.

## **The Off Season Program**

The exercises for the summer strength program are outlined on the Training Log. The exercises and the lifting cycle should be followed to maximize your work out time. Descriptions of most of the exercises can be found at the end of this section. The program is designed to build strength and endurance in the major muscles of the body. Keep in mind that you are training for hockey and not body building. This program consists of three phases.

### **PHASE 1 - Begins Week 1**

- a. All exercises are to be done in sets of 3 with 12-15 repetitions.
- b. You should use 60%-70% of your max weight as your working weight.
- c. Your 15th repetition should be difficult and if you are able to get a 16th rep. your weight is too light. If you are unable to get 12 reps your weight is too heavy.

### **PHASE 2 - Begins Week 7**

- a. All exercises are to be done in sets of 3 with 10- 12 repetitions. You should use 70%-80% of your max weight as your working weight.
- b. Your 12th or 10th repetition should be difficult and if you are able to get a 13th rep your weight is too light. If you are unable to get 10 reps your weight is too heavy.
- c. DO NOT SKIP REPS OR SETS!
- d. You should be able to add 5-10 pounds to your working weight weekly.

### **PHASE 3 - Begins Week 11**

- a. All exercises are to be done in sets of 3 with 8-10 repetitions. You should use 75%-85% of your max weight as your working weight.
- b. Your 6th or 8th repetition should be difficult and if you are able to get a 9th rep your weight is too light.
- c. If you are unable to get 6 reps your weight is too heavy.
- d. DO NOT SKIP REPS OR SETS!
- e. You should be able to add 5-10 pounds to your working weight weekly.

### **ABDOMINAL WORK OUT**

- a. The abdominal work out outlined below is to be done every work out session.
- b. The following exercises are to be completed for every abdominal work out.
  - 1. Crunches
  - 2. Full Crunches
  - 3. Leg Raise Crunch
  - 4. Elbow to opposite Knee Crunch
  - 5. Sit-ups
- c. Start by doing 10 repetitions for each abdominal exercise and add 5 repetitions per week, more if necessary.
- d. Start the work out with exercise #1 and move on to #2, #3, #4, and #5, taking a 20 second rest between exercises. This routine is to be completed four times per session.
- e. Record the number of repetitions you did for each set on the training log.

### **ACTIVE REST**

On active rest days push-ups, un-weighted squats, abs and a moderate 30 minute aerobic activity should be completed.

**PUSH-UPS** - It is recommended that 100 push-ups be done on a daily basis. Do not do these as part of your workout. They should be done at another time during the day such as when you first wake up in the morning or before bed at night or during your break at work. Doing this will greatly improve your upper body strength and endurance

**SQUATS** - It is recommended that 100 DEEP squats be done daily with little or no weight after doing your push-ups or at another time during the day outside your work out time. Doing this supplemental squat routine will greatly improve your lower body strength and endurance.

### **HOW TO COMPLETE YOUR WEIGHT TRAINING LOG?**

Your weight training logs are included in the workout booklet. In the space provided next to each exercise record the weight used next to the reps for the appropriate set.

For example: Bench Press 10x 225

*Training logs are to be kept for your own review*

### **Determining Your MAX**

The following are the procedures for determining your MAX. These procedures can be applied to all lifting exercises. Enter the amount of Weight you lift and the number of Repetitions into the following formula:

$$\text{MAX} = \text{Weight} \times (1 + .033 \times \text{Repetitions})$$

### **Determining Your Working Weight**

For the summer weight-training workout, your working weight for PHASE 1 should be 60%-70% of your MAX, for PHASE 2 it should be 75% - 80% and PHASE 3 it should be 80%-90%. To determine your working weight refer to the following procedures. Enter the amount of Weight you lift and the number of Repetitions into the following formula:

$$\text{MAX} = \text{Weight} \times (1 + .033 \times \text{Repetitions})$$

Multiply you're MAX by the appropriate percentage you are to use. EXAMPLE for finding working weight of 60% of MAX:

$$\text{Working Weight} = \text{MAX} \times .60.$$

### **Weight Training Guidelines**

- a. Begin every training session with a 10-minute warm-up.
- b. Work out with a partner and always use a spotter.
- c. All exercises are to be done with free weights.
  - The ONLY exceptions are: Triceps push-downs, Leg curls, Leg extensions. Abductors, Adductors, Seated rows, and Lat pull downs. Add weight if needed when doing body weight exercises such as dips and pull-ups to increase the work-load.

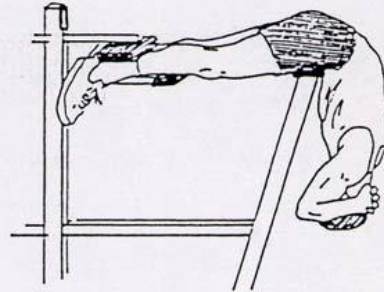
• **CONCENTRATE** on using proper form while doing each exercise. DO NOT sacrifice range of motion for increased weight. Finish each workout with a stretch.

## **BACK**

### **Hyperextension**

#### ***Beginning Position***

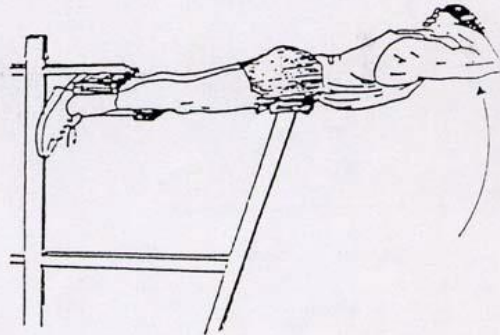
- ☐ Lie face down on hyperextension bench.
- ☐ Position legs so that knees are level with hips.
- ☐ Position pads in contact with hips and back of ankles.
- ☐ Hang torso down to form a 90° angle at the hip.
- ☐ Place hands on each side of the head or crossed at the chest.



Beginning position.

#### ***Upward Movement Phase***

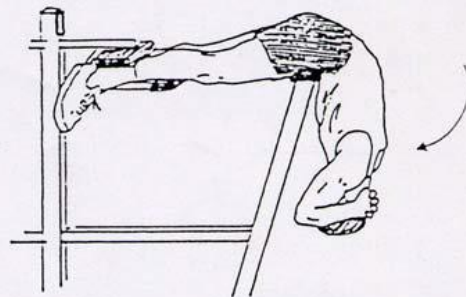
- ☐ Raise trunk until upper torso is parallel to floor.
- ☐ Head faces forward.
- ☐ Once upper body is parallel to floor, the thighs and shoulders form a straight line.



Upward movement.

#### ***Downward Movement Phase***

- ☐ Lower upper body slowly to return to beginning position.



Downward movement.

#### ***Breathing***

- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## TORSO

### GOODMORNINGS

**Focus:** Lower back

**Procedure:** Stand upright with an empty bar across your shoulders and knees slightly bent. Slowly bend forward at the waist, keeping your back straight and head up. Young athletes can initiate this exercise using a hockey stick across their shoulders.

### TRUNK ROLLS

**Focus:** Abdominals and back

**Procedure:** Player lies on floor (preferably cushioned mat), with legs straight out along ground and arms straight out on ground over head. Player lifts feet slightly off ground, and holds light medicine ball in hands. Player rolls left down mat, then returns rolling right. The key is to try to keep feet very slightly off ground and ball (hands) slightly off ground while rolling.

### WEIGHT PLATE STICKHANDLING

**Focus:** Abdominals, low back

**Procedure:** Stand upright with your knees slightly flexed. Hold a hockey stick upside down, placing the end in the hole of an Olympic plate. Slowly move the plate through a wide figure-8 movement. Then move the plate left to right, moving it as wide outside the body as possible.

### FULL BENT-LEG SIT-UPS

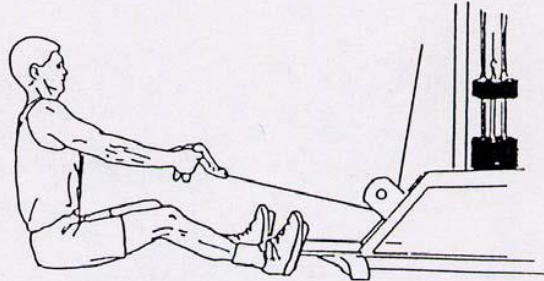
**Focus:** Abdominals

**Procedure:** Lie on your back with your knees flexed to 90 degrees and your feet flat on the floor. Place your hands at the side of your head. Ankles are *not* held. Likewise, do not pull behind your head. Slowly sit up, using only your abdominals, until your elbows touch the knees. Lower under control, taking the same time to lower as it did to sit up.

## Seated Row (Machine)

### *Beginning Position*

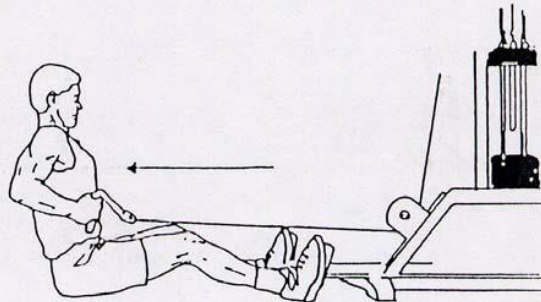
- ☐ Assume a seated position facing the machine.
- ☐ Place feet on machine frame or foot supports.
- ☐ Position torso perpendicular to floor.
- ☐ Slightly flex knees.
- ☐ Grasp bar handle or bar with a closed grip.
- ☐ Fully extend elbows.



Beginning position.

### *Backward Movement Phase*

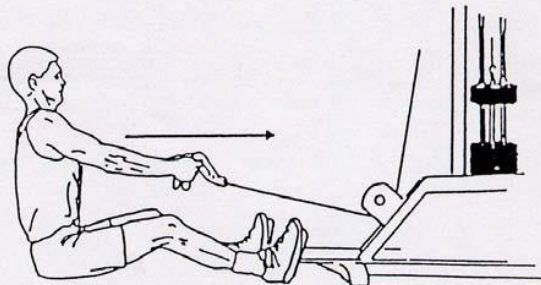
- ☐ Keep body erect and stationary.
- ☐ Do not lean backward.
- ☐ Pull bar or handle toward chest/upper abdomen.
- ☐ Keep elbows next to ribs.



Backward movement.

### *Forward Movement Phase*

- ☐ Allow bar or handle to move away from the body slowly and under control.
- ☐ Maintain body position.
- ☐ Keep elbows next to ribs.



Forward movement.

### *Breathing*

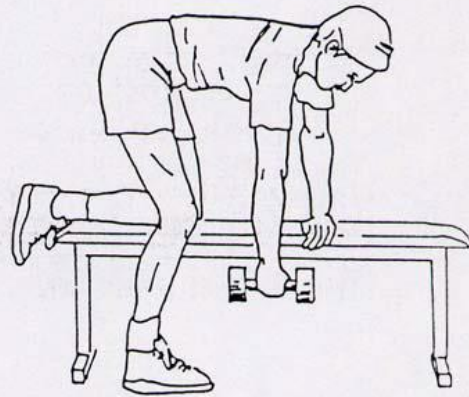
- ☐ Exhale through the sticking point of the backward movement phase.
- ☐ Inhale during the forward movement phase.



## One-Arm Dumbbell Row (Free Weight)

### *Beginning Position*

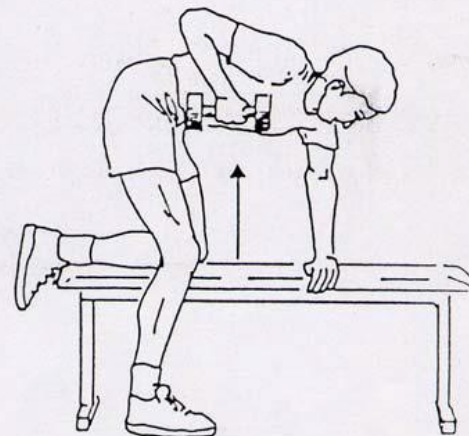
- ☐ Stand at one side of the bench.
- ☐ Kneel on the bench with the inside leg.
- ☐ Lean forward and place inside hand on the bench in front of the knee.
- ☐ Plant outside foot at side of bench and flex knee.
- ☐ Position torso parallel to floor.
- ☐ Grasp dumbbell with outside hand.
- ☐ Hang dumbbell at full elbow extension.



Beginning position.

### *Upward Movement Phase*

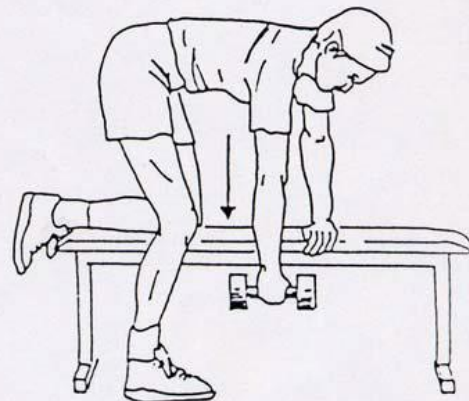
- ☐ Pull dumbbell up toward the chest.
- ☐ Keep upper arm and elbow next to ribs.
- ☐ Keep back and shoulders even and parallel to floor.
- ☐ Touch dumbbell to outer chest and rib cage.



Bring dumbbell to chest.

### *Downward Movement Phase*

- ☐ Lower dumbbell slowly and under control to a fully extended elbow position.
- ☐ Keep upper arm and elbow next to the ribs.
- ☐ Maintain body position.



Downward movement.

### *Breathing*

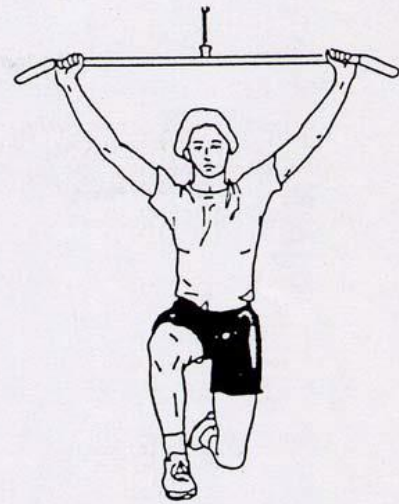
- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## Lat Pulldown (Machine)

### *Beginning Position*

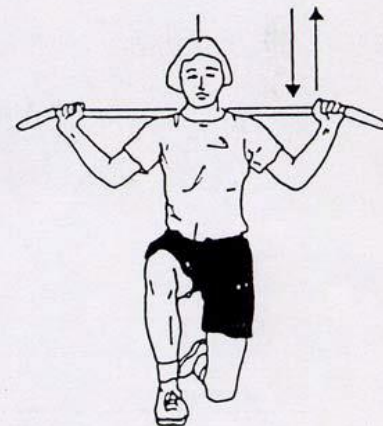
- ☐ Grasp lat pulldown bar with a closed, pronated grip.
- ☐ Grip should be wider than shoulder-width.
- ☐ Pull bar down and position one knee on floor, with foot of other leg forward and on floor.
- ☐ Keep torso erect.
- ☐ Tilt head slightly down.
- ☐ Arms begin fully extended.



Beginning position.

### *Downward Movement Phase*

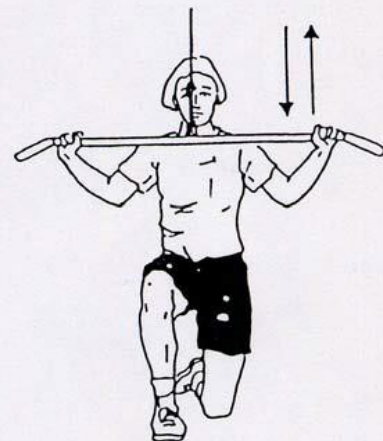
- ☐ Pull bar down toward the neck.
- ☐ Maintain body position.
- ☐ Touch bar at base of the neck.
- ☐ Bar can also be pulled down in front to touch upper chest.



Pull bar down to base of neck.

### *Upward Movement Phase*

- ☐ Allow arms to fully extend.



Bar can also be pulled down to upper chest.

### *Breathing*

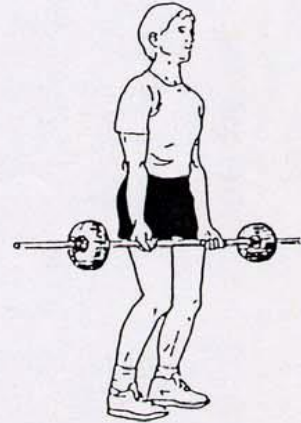
- ☐ Exhale through the sticking point of the downward movement phase.
- ☐ Inhale during the upward movement phase.

# BICEPS

## Biceps Curl (Free Weight)

### *Beginning Position*

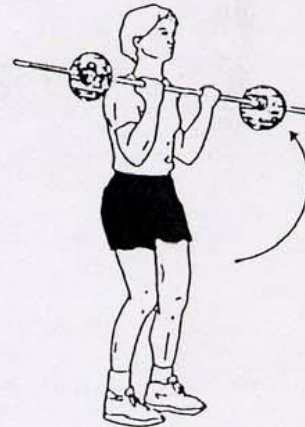
- ☐ Grasp bar using a closed, supinated grip.
- ☐ Grip should be slightly wider than shoulder-width.
- ☐ Little finger should be touching the outer thigh.
- ☐ Stand erect with feet shoulder-width apart, knees slightly flexed.
- ☐ Rest the bar on the anterior thigh, elbows fully extended.
- ☐ Position upper arms against the ribs and perpendicular to floor.



Beginning position.

### *Upward Movement Phase*

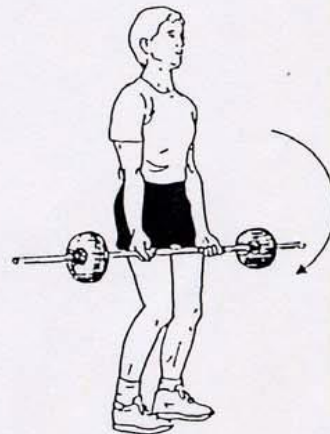
- ☐ Raise bar in an arc by flexing arms at the elbows.
- ☐ Keep upper arms and elbows stationary.
- ☐ Maintain body position.
- ☐ Do not swing the bar upward.
- ☐ Raise bar to within 10 to 15 cm of the anterior deltoids.



Upward movement.

### *Downward Movement Phase*

- ☐ Lower the bar slowly and under control until elbows are fully extended.
- ☐ Maintain body position.
- ☐ Do not jerk or bounce the bar at the bottom of movement.



Downward movement.

### *Breathing*

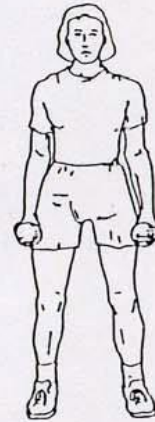
- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## Hammer Curl (Free Weight)

### *Beginning Position*

- ☐ Grasp dumbbells using a closed, neutral grip.
- ☐ Palms should be facing outer thighs.
- ☐ Stand erect with feet shoulder-width apart, knees slightly flexed.
- ☐ Allow dumbbells to hang at the sides, elbows fully extended.
- ☐ Position upper arms against the ribs, perpendicular to floor.



Beginning position.

### *Upward Movement Phase*

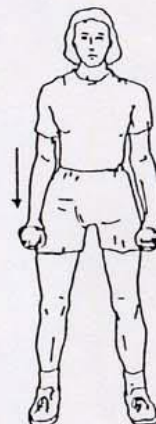
- ☐ Raise one dumbbell in an arc by flexing the arm at the elbow.
- ☐ Keep upper arm and elbow stationary.
- ☐ Keep dumbbell in a neutral position.
- ☐ Maintain body position.
- ☐ Do not swing the dumbbell upward.
- ☐ Raise dumbbell to within 10 to 15 cm from the anterior deltoids.



Upward movement.

### *Downward Movement Phase*

- ☐ Lower dumbbell slowly and under control until elbow is fully extended.
- ☐ Keep dumbbell in a neutral position.
- ☐ Maintain body position.
- ☐ Do not jerk or bounce the dumbbell at the bottom of movement.
- ☐ Repeat upward and downward movement phase with other arm (alternate arms).



Downward movement.

### *Breathing*

- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.

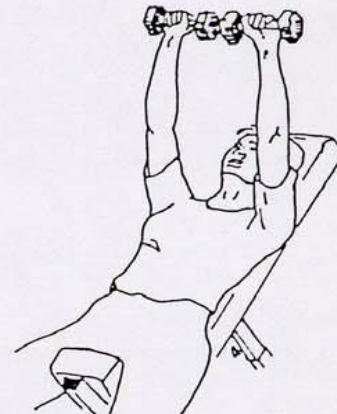
## **CHEST**

### **Dumbbell Incline Bench Press (Free Weight)**

Note that this exercise can also be performed on a flat or decline bench.

#### ***Beginning Position***

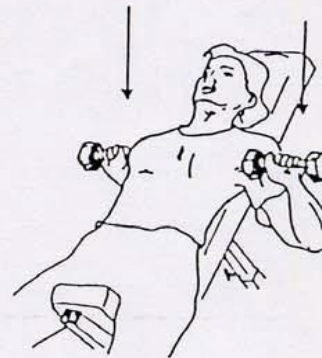
- ☐ Lie facing forward on incline bench.
- ☐ Position feet flat on floor.
- ☐ Position head, shoulders, and buttocks flat on bench.
- ☐ Grasp dumbbells with a closed grip, palms facing forward.
- ☐ Press both dumbbells to extended arm position above head.
- ☐ Point elbows out.



Beginning position.

#### ***Downward Movement Phase***

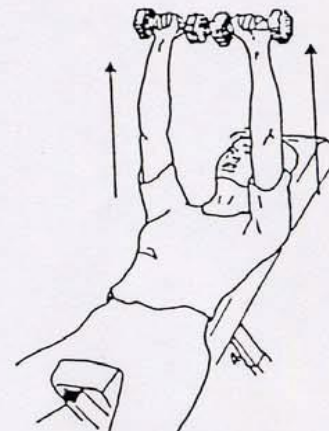
- ☐ Lower dumbbells slowly and under control.
- ☐ Keep forearms parallel.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Lower dumbbells to touch anterior deltoids or outer chest.



Downward movement.

#### ***Upward Movement Phase***

- ☐ Push dumbbells to full elbow extension.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Keep forearms parallel.



Upward movement.

#### ***Breathing***

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.



## Flat Bench Press (Free Weight)

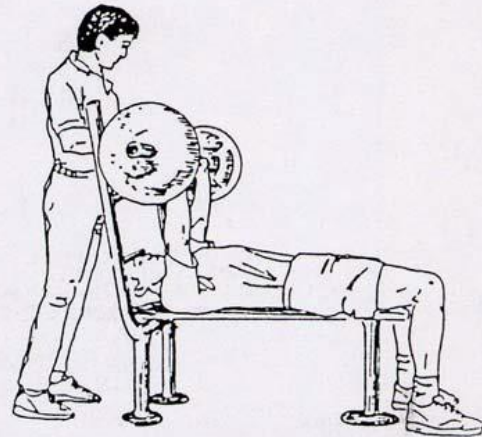
Note that this exercise can also be performed using dumbbells and/or on a decline bench.

### *Beginning Position: Lifter*

- ☐ Lie face up on a bench.
- ☐ Position feet flat on floor.
- ☐ Position head, shoulders, and buttocks flat on bench.
- ☐ Eyes should be below edge of the bar shelf.
- ☐ Grasp bar with a closed, pronated grip.
- ☐ Signal spotter.
- ☐ Move bar off bar shelf.
- ☐ Position bar over chest, elbows fully extended.

### *Beginning Position: Spotter*

- ☐ Stand 15 to 20 cm from the head of the bench.
- ☐ Grasp bar with an alternated grip.
- ☐ Grip should be inside lifter's hands.
- ☐ Keep torso erect, knees slightly flexed.
- ☐ At lifter's signal, assist with moving bar from bar shelf.
- ☐ Guide bar to position over lifter's chest.
- ☐ Release bar smoothly.



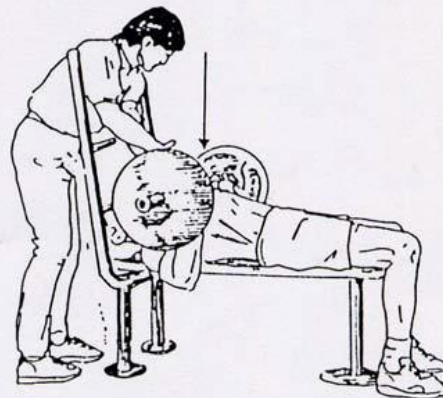
Beginning positions.

### *Downward Movement Phase: Lifter*

- ☐ Lower bar slowly and under control.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Keep wrists straight.
- ☐ Lower bar to touch the chest near the nipples.

### *Downward Movement Phase: Spotter*

- ☐ Keep hands close to the bar as it descends.
- ☐ Maintain torso and knee position.



Downward movement positions.

### ***Upward Movement Phase: Lifter***

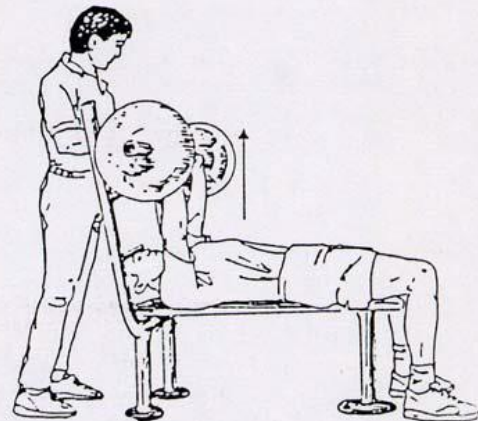
- ☐ Push bar up to full elbow extension.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Do not arch the lower back.
- ☐ At the completion of the set, signal spotter.
- ☐ Move bar to bar shelf.
- ☐ Keep grip on bar until racked.

### ***Upward Movement Phase: Spotter***

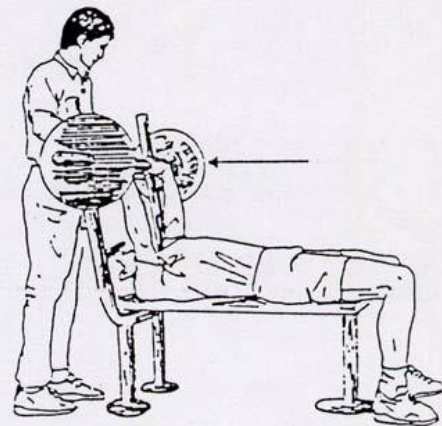
- ☐ Keep hands close to bar as it ascends.
- ☐ Maintain upright body position, knees flexed.
- ☐ At the lifter's signal at the completion of the set, grasp bar with alternated grip.
- ☐ Grip should be inside lifter's hands.
- ☐ Guide bar back into bar shelf.
- ☐ Keep grip on bar until racked.

### ***Breathing***

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.



Upward movement positions.



Racking the bar.

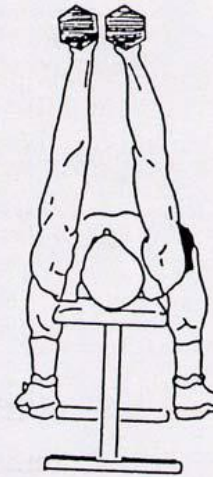


## Flat Dumbbell Fly (Free Weight)

Note that this exercise can also be performed on an incline or decline bench.

### *Beginning Position*

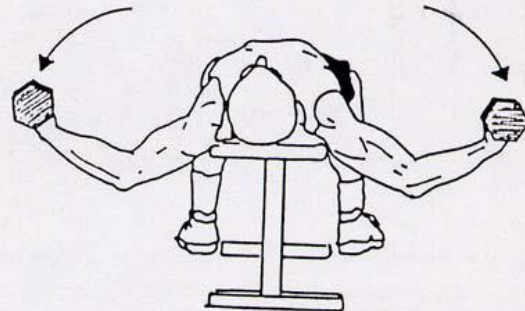
- ☐ Lie face up on a bench with feet flat on floor.
- ☐ Position head, shoulders, and buttocks flat on bench.
- ☐ Grasp dumbbells with a closed, pronated grip.
- ☐ Press dumbbells to extended arm position above chest.
- ☐ Rotate dumbbells so palms face each other.
- ☐ Point elbows out.



Beginning position.

### *Downward Movement Phase*

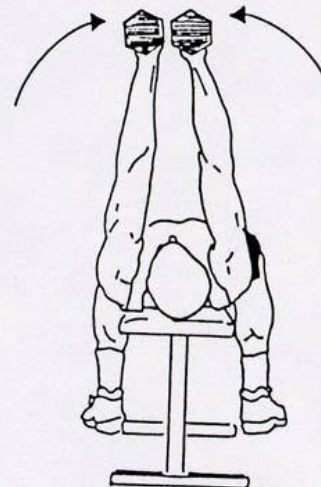
- ☐ Slightly flex the elbows.
- ☐ Move dumbbells outward in wide arcs.
- ☐ Keep palms up and elbows pointed toward floor.
- ☐ Keep dumbbells in line with the shoulders as they are lowered.
- ☐ Lower dumbbells slowly and under control until they are level with the shoulders.



Downward movement.

### *Upward Movement Phase*

- ☐ Pull dumbbells evenly toward each other in a wide arc to an extended arm position above chest.
- ☐ Keep the elbows slightly flexed until just prior to reaching the beginning position.



Upward movement.

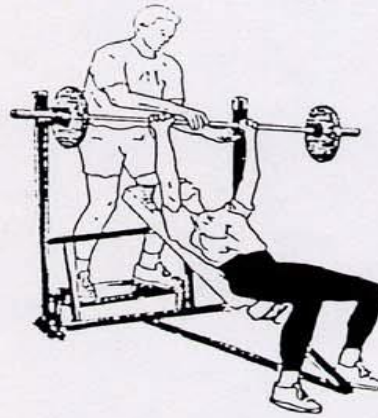
### *Breathing*

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.

## Incline Bench Press (Free Weight)

### *Beginning Position: Lifter*

- ☐ Lie facing forward on incline bench.
- ☐ Position feet flat on floor.
- ☐ Position head, shoulders, and buttocks flat on bench.
- ☐ Grasp bar with a closed, pronated grip.
- ☐ Eyes should be ahead of bar shelf edge.
- ☐ Signal spotter.
- ☐ Move bar off bar shelf to fully extended elbow position.
- ☐ Position bar over clavicles/upper chest.



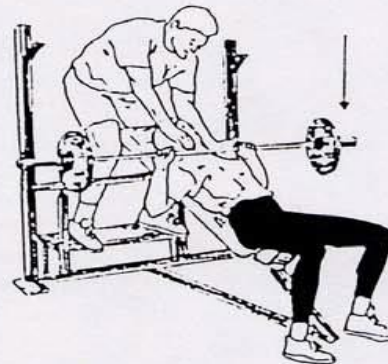
Beginning positions

### *Beginning Position: Spotter*

- ☐ Stand on spotter's platform.
- ☐ Grasp bar with an alternated grip.
- ☐ Grip should be inside lifter's hands.
- ☐ Keep torso erect, knees slightly flexed.
- ☐ At lifter's signal, assist with moving bar from bar shelf.
- ☐ Guide bar to position over lifter's clavicles/upper chest.
- ☐ Release bar smoothly.

### *Downward Movement Phase: Lifter*

- ☐ Lower bar slowly and under control.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Keep wrists straight.
- ☐ Lower bar to touch upper chest below the clavicles



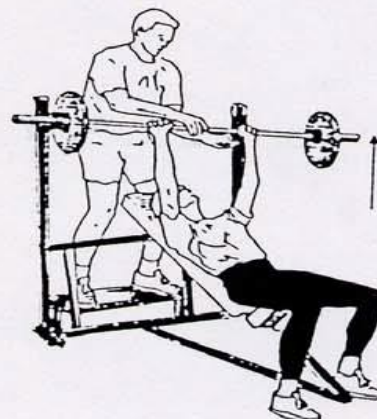
Downward movement positions

### *Downward Movement Phase: Spotter*

- ☐ Keep hands close to the bar as it descends
- ☐ Maintain upright body position, knees flexed

### *Upward Movement Phase: Lifter*

- ☐ Push bar up to full elbow extension.
- ☐ Maintain body position on bench, feet on floor.
- ☐ Do not arch lower back.
- ☐ At the completion of set, signal spotter.
- ☐ Move bar to bar shelf.
- ☐ Keep grip on bar until racked.



Upward movement positions

### *Upward Movement Phase: Spotter*

- ☐ Keep hands close to bar as it ascends.
- ☐ Maintain upright body position, knees flexed.
- ☐ At lifter's signal at the completion of the set, grasp bar with alternated grip.
- ☐ Grip should be inside lifter's hands.
- ☐ Guide bar back onto bar shelf.
- ☐ Keep grip on bar until racked.

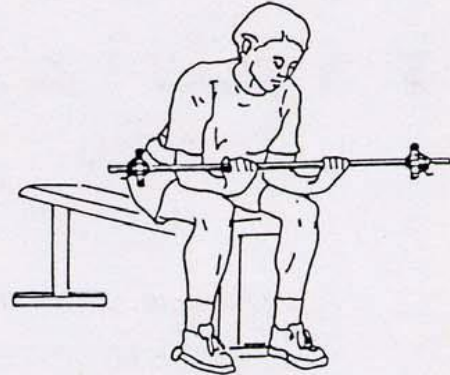


## FOREARMS

### Wrist Curl (Free Weight)

#### *Beginning Position*

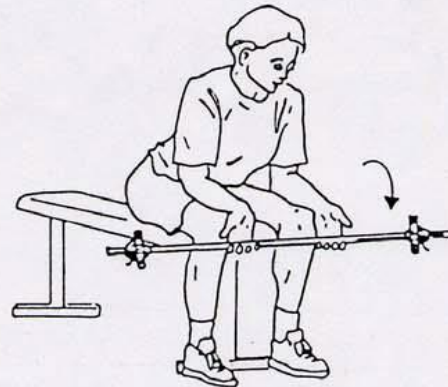
- ☐ Sit on the end of a bench.
- ☐ Grasp bar with an open, supinated grip, hands 20 to 30 cm apart.
- ☐ Position feet flat on floor, thighs parallel to each other.
- ☐ Lean torso forward.
- ☐ Position elbows and forearms on the thighs.
- ☐ Extend wrists slightly beyond knees.



Beginning position.

#### *Downward Movement Phase*

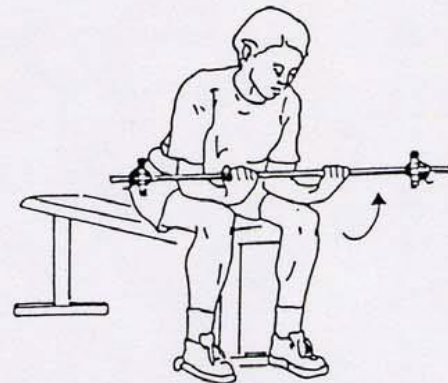
- ☐ Open the hands and extend the wrists slowly and under control.
- ☐ Allow the bar to roll down to the ends of the fingers.
- ☐ Maintain body position.
- ☐ Keep elbows and forearms on the thighs.
- ☐ Keep the thighs parallel to each other.



Downward movement.

#### *Upward Movement Phase*

- ☐ Raise the bar by flexing the fingers and wrists.
- ☐ Keep elbows on the thighs.
- ☐ Do not flex arm at the elbow during the movement.
- ☐ At the completion of the set, return bar to floor.



Upward movement.

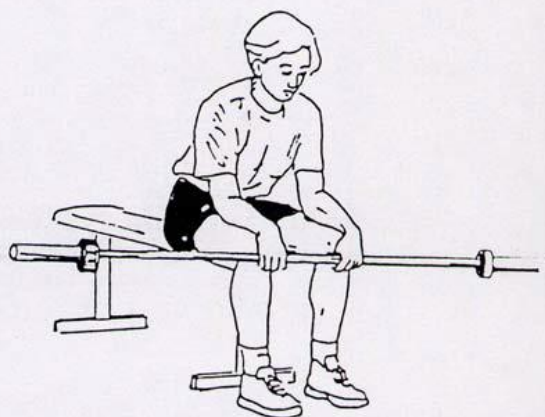
#### *Breathing*

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.

## Wrist Extension (Free Weight)

### *Beginning Position*

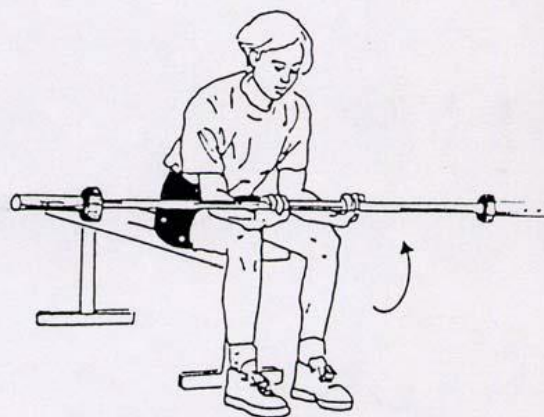
- ☐ Sit on the end of a bench.
- ☐ Grasp bar with a closed, pronated grip, hands 20 to 30 cm apart.
- ☐ Position feet flat on floor, thighs parallel to each other.
- ☐ Lean torso forward.
- ☐ Position elbows and forearms on the thighs.
- ☐ Extend wrists slightly beyond knees.



Beginning position.

### *Upward Movement Phase*

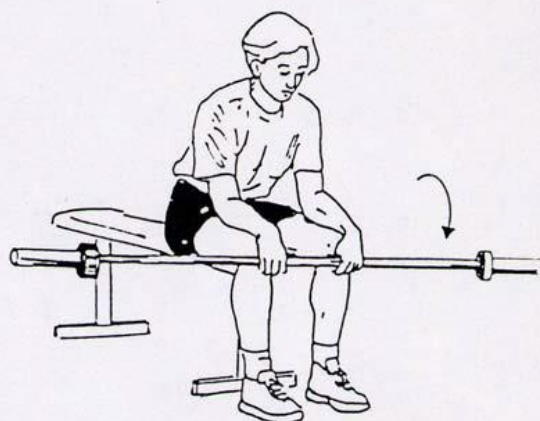
- ☐ Raise the bar by extending the wrists.
- ☐ Keep elbows on the thighs.
- ☐ Do not flex arm at the elbow during the movement.



Upward movement.

### *Downward Movement Phase*

- ☐ Flex wrists slowly and under control to allow bar to move toward floor.
- ☐ Maintain a closed grip.
- ☐ Maintain body position.
- ☐ Keep elbows and forearms on the thighs.
- ☐ Keep the thighs parallel to each other.
- ☐ At the completion of the set, return bar to floor.



Downward movement.

### *Breathing*

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.

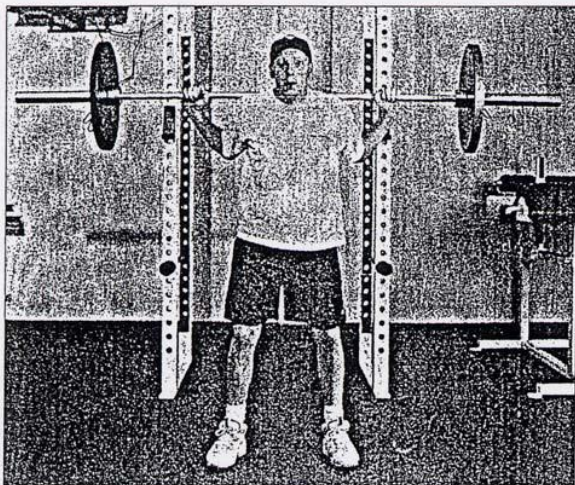


## LOWER BODY

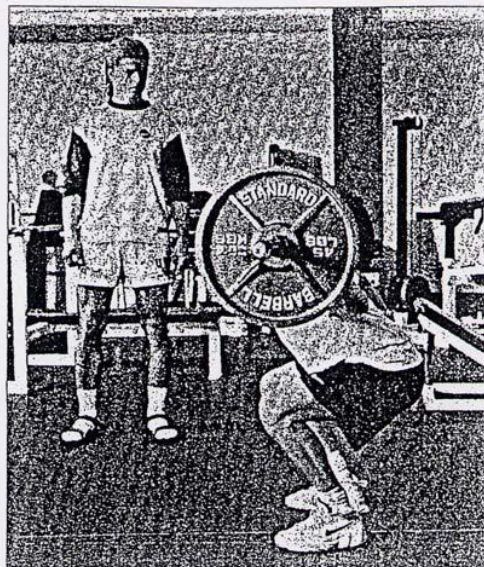
### SQUATS

Focus: Legs, gluteals, back

**Procedure:** Stand upright with bar balanced on back using a wide overhand grip. Feet should be shoulder-width apart and parallel, with toes pointed out slightly. Maintaining a straight back, with your head up, focus your eyes on a point slightly higher than head level. Begin to lower the weight by dropping the hips into a seated position and flexing the knees. Your weight should be on the middle to back of the feet. Your knees should remain over your feet—if you glance down they should never be out past your toes. Lower until your quadriceps are parallel to the ground, then raise the bar by straightening the hips and knees.



Corey Hirsch shows proper squat positioning on this and the following page. Technique should be assessed by viewing from the front, rear, and side.



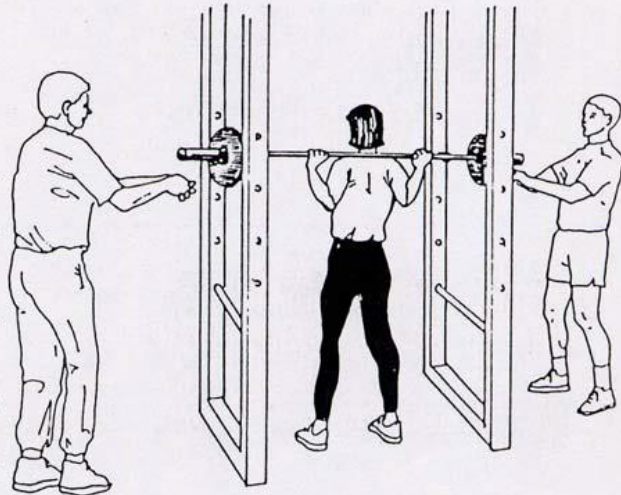
Many coaches will say that squats are dangerous. Players have told me, "I used to do squats, but they hurt my knees." The truth is squats build up strength around your knees. *Incorrect* squats can hurt your knees, and hockey can tear down your knees, but correct squats build up your knee strength. I actually use controlled squats and partial squats only days after players suffer certain serious knee ligament injuries in a game. Squats are very safe. *Any* exercise done incorrectly is dangerous. Inevitably, all players claiming hurt knees demonstrate similar incorrect technique. They initiate their descent at the knees, and end up with their weight on their toes and their knees out past their toes, putting most of the force on their knees! Start lowering into a squat by first lowering your buttocks, like sitting onto a chair. In the squat, your weight should be on your heels—you should be able to move your toes up off the ground while in the squat position. Your knees should remain over your toes—never out in front of them. You'll feel a little off balance the first few times you try the correct technique. Soon it will feel natural, and you'll be on your way to safely developing some important skating muscles.

## LEGS

### Back Squat (Free Weight)

#### *Beginning Position: Lifter*

- ☐ Grasp bar with a closed, pronated grip.
- ☐ Grip should be slightly wider than shoulder-width.
- ☐ Step under the bar and position feet parallel to each other.
- ☐ Move hips under bar.
- ☐ Position the bar in balanced position on the shoulders in one of two positions:
  1. *Low bar position*—across posterior deltoids at the middle of the trapezius
  2. *High bar position*—above posterior deltoids at the base of the neck

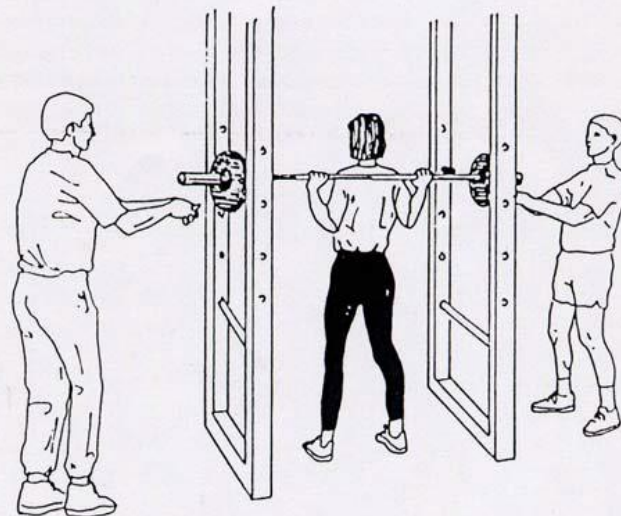


Beginning positions with bar in the high bar position.

- ☐ Lift and hold chest up and out.
- ☐ Pull shoulder blades toward each other.
- ☐ Tilt head slightly up.
- ☐ Lift elbows up to create a "shelf" for the bar.
- ☐ Straighten both legs to lift bar out of racks.
- ☐ Take one or two steps backward.
- ☐ Position feet shoulder-width apart or wider, and even with each other.
- ☐ Point toes slightly outward.

#### *Beginning Position: Spotters*

- ☐ Two spotters stand at opposite ends of the bar, feet positioned slightly wider than hip-width.
- ☐ Cup hands with palms facing upward.
- ☐ Palms begin and are maintained in a position 5 to 8 cm below the ends of the bar.
- ☐ Spotters move sideways in unison with the lifter as lifter moves backward.
- ☐ Once in position, feet are slightly wider than hip-width, knees slightly flexed, back flat.

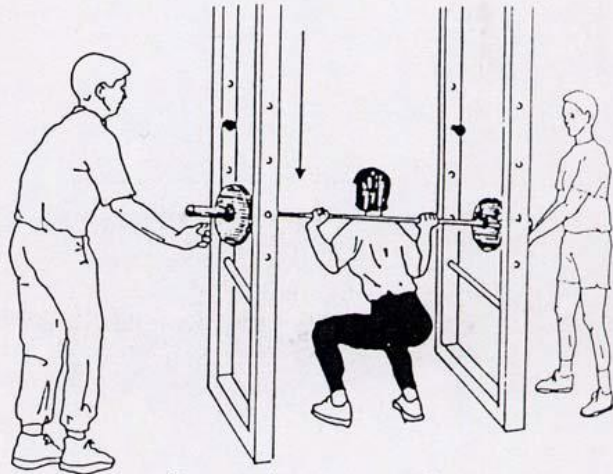


Beginning positions with the bar in the low bar position.



### ***Downward Movement Phase: Lifter***

- ☐ Focus eyes on wall 30 to 60 cm above eye level.
- ☐ Slowly and under control, lower bar by flexing at the hips and knees.
- ☐ Maintain erect body position.
- ☐ Keep weight over the middle of the foot and heels, not the toes.
- ☐ Keep heels on the floor.
- ☐ Keep knees aligned over the feet.
- ☐ Slowly lower hips until tops of thighs are parallel to floor.
- ☐ Do not bounce at the bottom of movement.



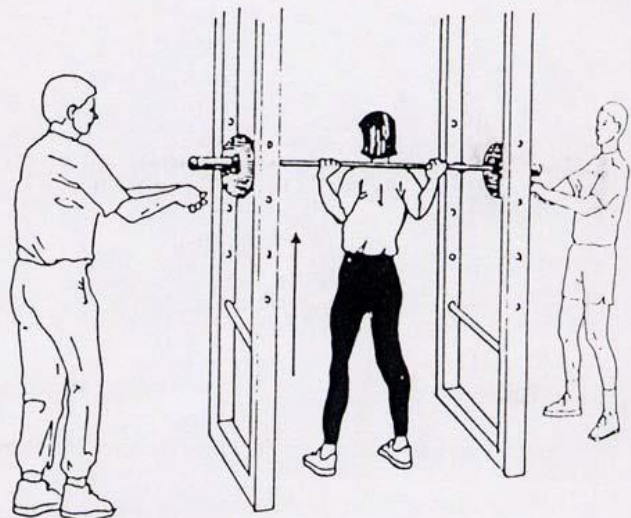
Downward movement positions.

### ***Downward Movement Phase: Spotters***

- ☐ Spotters squat down in unison with the lifter.
- ☐ Cup hands 5 to 8 cm below the bar and follow the bar downward.
- ☐ Maintain body position.

### ***Upward Movement Phase: Lifter***

- ☐ Keep eyes focused on wall 30 to 60 cm above eye level.
- ☐ Slowly raise bar by straightening the hips and knees.
- ☐ Maintain body position.
- ☐ Keep knees aligned over the feet.
- ☐ Do not let knees move in or out.
- ☐ Do not accelerate the bar at the top of movement.
- ☐ At the completion of the set, slowly step forward into the rack.
- ☐ Position hips beneath the bar.
- ☐ Squat down until the bar is resting in the rack.



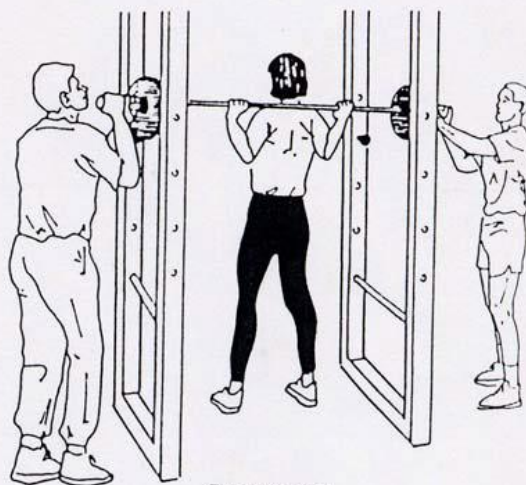
Upward movement positions.

### ***Upward Movement Phase: Spotters***

- ☐ Stand up with the lifter.
- ☐ Keep hands 5 to 8 cm below and close to the bar.
- ☐ Assist only if necessary.
- ☐ Walk the lifter back into the rack.
- ☐ Spotters simultaneously grab onto the bar, keeping it level, and assist lifter with placing the bar in the rack.

### ***Breathing***

- ☐ Inhale during the downward movement phase.
- ☐ Exhale through the sticking point of the upward movement phase.

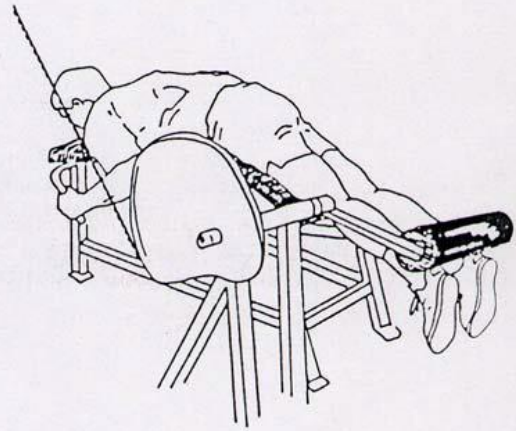


Rack the bar.

## Leg Curl (Machine)

### *Beginning Position*

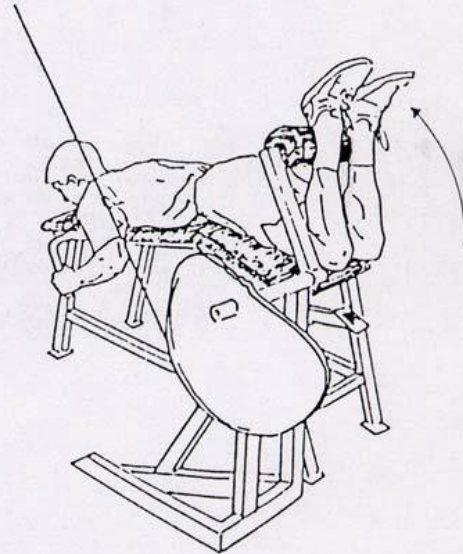
- ☐ Lie face down on the bench.
- ☐ Position hips and chest flat on pads.
- ☐ Position knees below bottom edge of thigh pad.
- ☐ Position ankles under and in contact with heel roller pad.
- ☐ Align knees with axis of machine.
- ☐ Grasp handles or edge of torso pad.



Beginning position.

### *Upward Movement Phase*

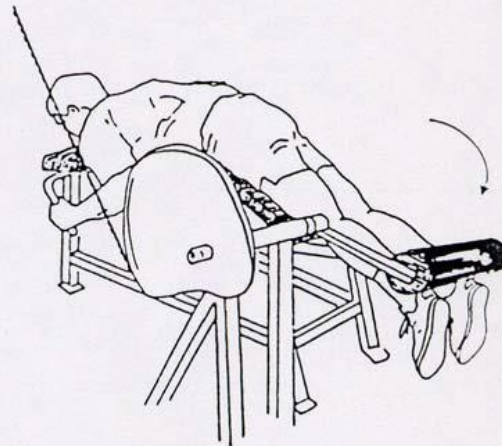
- ☐ Maintain body position on the bench and roller pad.
- ☐ Keep hips in contact with bench.
- ☐ Flex the legs at the knees.
- ☐ Pull heels up and as close to the buttocks as possible.



Upward movement.

### *Downward Movement Phase*

- ☐ Maintain body position on the bench and roller pad.
- ☐ Lower roller pad slowly and under control to beginning position.



Downward movement.

### *Breathing*

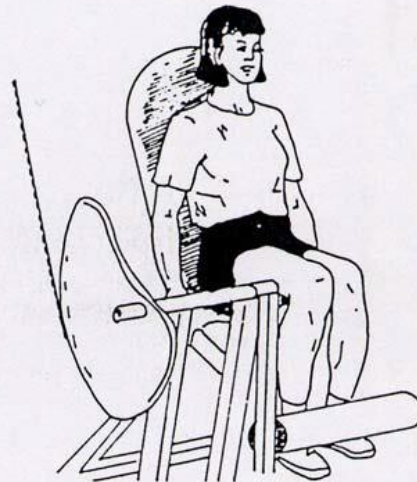
- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## Leg Extension (Machine)

### *Beginning Position*

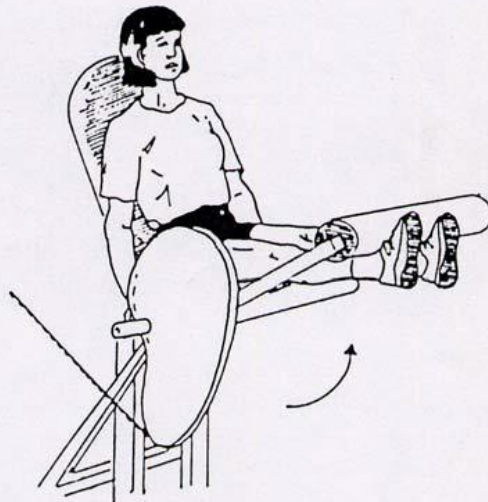
- ☐ Assume a seated position on the machine.
- ☐ Place ankles behind and in contact with roller pad.
- ☐ Position legs parallel to each other.
- ☐ Align knees with axis of machine.
- ☐ Grasp handles or sides of thigh pad.
- ☐ Keep torso erect.
- ☐ Keep back flat against back pad.



Beginning position.

### *Upward Movement Phase*

- ☐ Extend the legs at the knees.
- ☐ Move feet up to full knee extension.
- ☐ Maintain position on back and thigh pad.
- ☐ Keep buttocks in contact with the thigh pad.



Upward movement.

### *Downward Movement Phase*

- ☐ Lower pad slowly and under control.
- ☐ Maintain position on back and thigh pad.
- ☐ Lower roller pad to beginning position.



Downward movement.

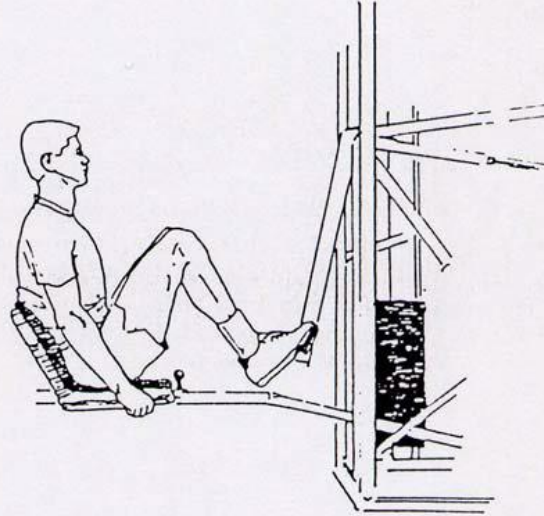
### *Breathing*

- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.

## Leg Press (Machine)

### *Beginning Position*

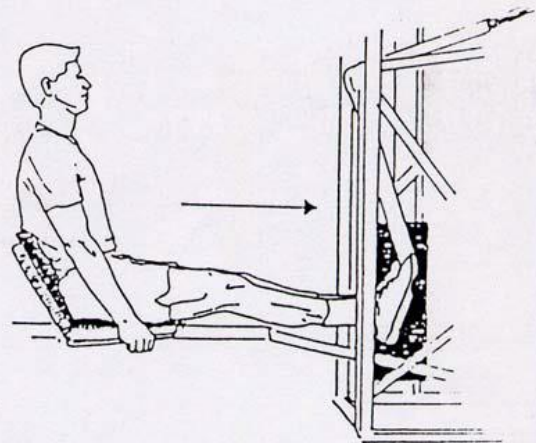
- ☐ Assume a seated position on the machine.
- ☐ Place feet flat on pedals.
- ☐ Position thighs, lower legs, and feet parallel to each other.
- ☐ Grasp handles or sides of thigh pad.
- ☐ Keep torso erect.
- ☐ Keep buttocks on thigh pad and back flat against back pad.



Beginning position.

### *Forward Movement Phase*

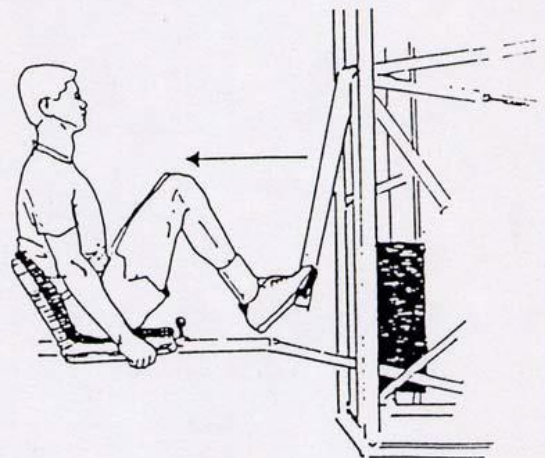
- ☐ Push foot pedals forward.
- ☐ Maintain erect position on the seat and back pad.
- ☐ Keep buttocks in contact with the thigh pad.
- ☐ Keep thighs, lower legs, and feet parallel to each other.
- ☐ Avoid forcefully locking out the knees.



Forward movement.

### *Backward Movement Phase*

- ☐ Maintain position on the pads.
- ☐ Move foot pedals backward slowly and under control to beginning position.



Backward movement.

### *Breathing*

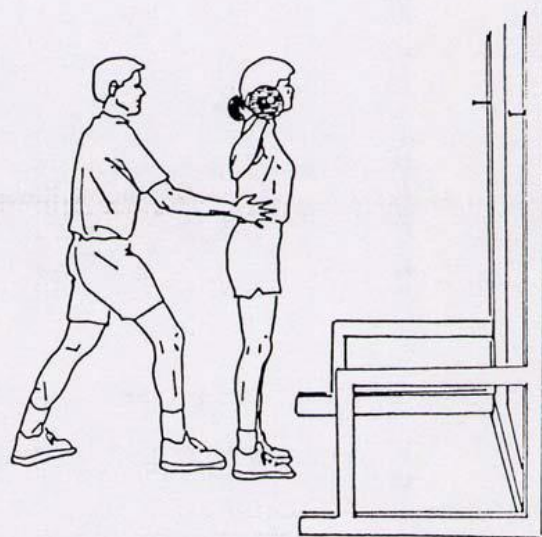
- ☐ Exhale through the sticking point of the forward movement phase.
- ☐ Inhale during the backward movement phase.



## Lunge (Free Weight)

### *Beginning Position: Lifter*

- ☐ Grasp bar with a closed, pronated grip.
- ☐ Grip should be slightly wider than shoulder-width.
- ☐ Step under the bar and position feet parallel to each other.
- ☐ Move hips under bar.
- ☐ Position the bar in a balanced position on the shoulders (above the posterior deltoids at the base of the neck).
- ☐ Lift and hold chest up and out and pull shoulder blades toward each other.
- ☐ Tilt head slightly up.
- ☐ Lift elbows up to create a "shelf" for the bar.
- ☐ Extend both legs to lift bar out of racks.
- ☐ Take at least three steps backward.



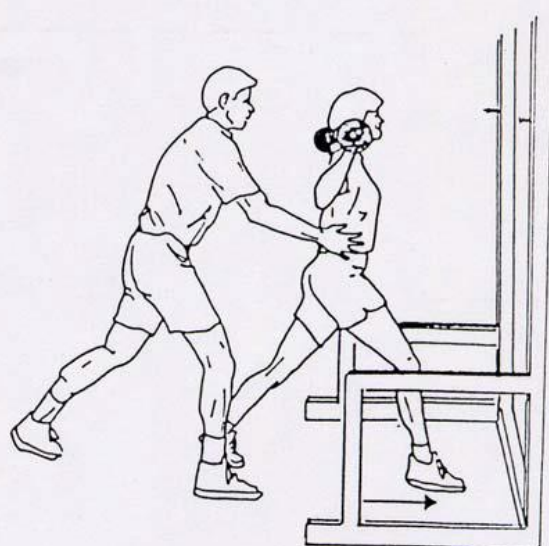
Beginning positions.

### *Beginning Position: Spotter*

- ☐ Assist lifter with removing the bar from the rack.
- ☐ Step backward with lifter to beginning position location.
- ☐ Stand 15 cm behind lifter.
- ☐ Position feet hip-width apart.
- ☐ Position hands near the lifter's hips or sides or torso.

### *Forward Movement Phase: Lifter*

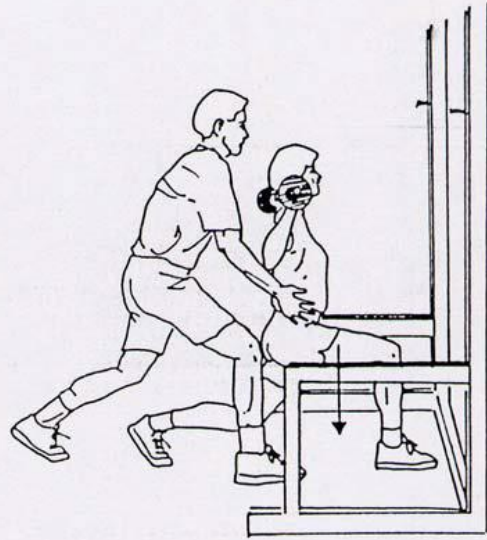
- ☐ Take one exaggerated step directly forward with one leg (the "lead" leg).
- ☐ Keep lead knee and foot aligned, and toes pointing straight ahead or slightly inward.
- ☐ Plant lead foot squarely on floor.
- ☐ Flex the lead knee slowly and under control.
- ☐ Lower trailing knee toward floor.
- ☐ Bottom position for trailing knee is 2.5 to 5 cm above floor.
- ☐ Keep torso vertical to floor by "sitting back" on the trailing leg.
- ☐ Keep lead knee directly over lead foot.
- ☐ Keep lead foot flat on floor.
- ☐ Do not bounce in the bottom position.



Beginning of forward movement positions.

### ***Forward Movement Phase: Spotter***

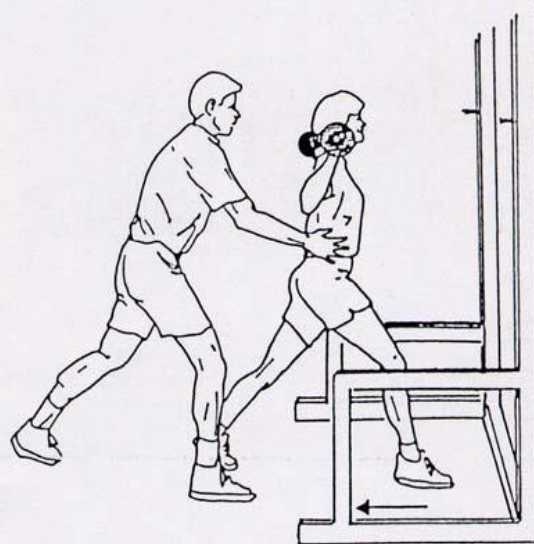
- ☐ Step forward with same foot as the lifter.
- ☐ Keep lead knee and foot aligned with lifter's lead foot.
- ☐ Plant foot 15 to 45 cm behind lifter's foot.
- ☐ Flex lead knee as lifter's lead knee flexes.
- ☐ Keep torso erect.
- ☐ Keep hands near lifter's hips or torso.
- ☐ Assist only when necessary to keep lifter balanced.



Completion of forward movement positions.

### ***Backward Movement Phase: Lifter***

- ☐ Forcefully push off with the lead leg.
- ☐ Maintain body position.
- ☐ Bring lead foot back to a position next to the trailing foot.
- ☐ Pause and stand erect.
- ☐ Alternate lead legs.
- ☐ At the completion of the set, slowly step forward into the rack.
- ☐ Position hips beneath the bar.
- ☐ Squat down until both ends of the bar are resting on the rack.



Backward movement positions.

### ***Backward Movement Phase: Spotter***

- ☐ Push backward with lead leg simultaneously with the lifter.
- ☐ Bring lead foot back parallel to trailing foot.
- ☐ Keep hands near lifter's hips or torso.
- ☐ Assist only when necessary to keep lifter balanced.
- ☐ At the completion of the set, help lifter place the bar in the rack.

### ***Breathing***

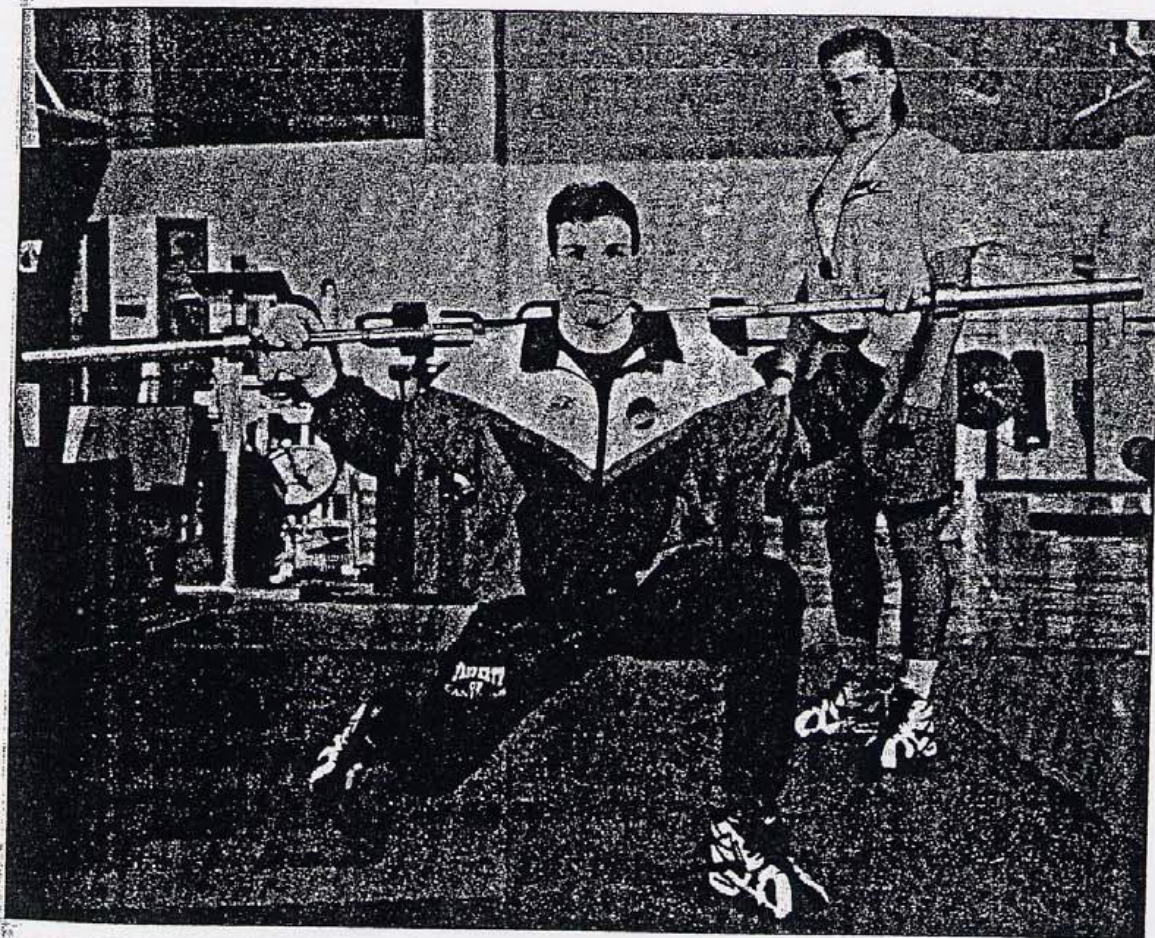
- ☐ Inhale during the forward movement phase.
- ☐ Exhale during the push-off of the backward movement phase.



## HOCKEY LUNGES

**Focus:** Hamstrings, quadriceps, groin, gluteals, calves, abductors, hip extensors, hip flexors

**Procedure:** These are similar to walking lunges, but you stride out at a 45-degree angle (an angle similar to the push-off on the ice), with your leg outwardly rotated and your body weight over this single striding leg, just like on the ice. When landing, the foot should be in line with the leg to protect your knee—if the foot faces forward when it plants, there will be irregular stress placed sideways on the knee. Planting the foot in line with the leg (out at a 45-degree angle) also puts that leg in a position to push off the next stride at a 45-degree angle. In the photo, Tim Hunter lunges out at a 45-degree angle, landing on his left foot. He will immediately push off with the right foot, moving his body weight over the left foot where he is ready to push off to the opposite side at a 45-degree angle, where he will plant his right foot to land.



Tim Hunter striding through a set of hockey lunges



## SUMO SIDE LUNGES

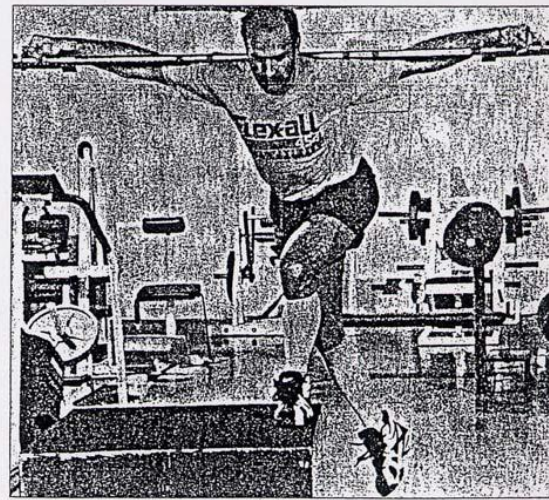
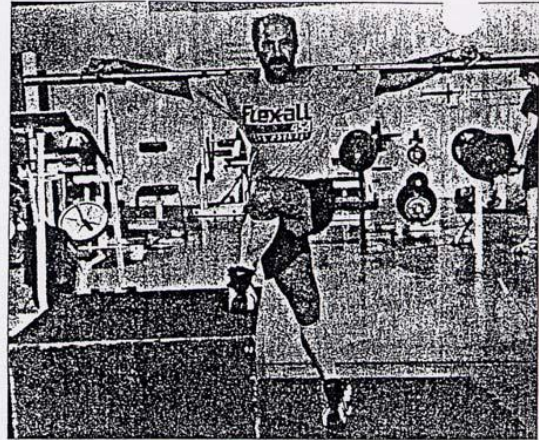
**Focus:** Hamstrings, quadriceps, groin, gluteals, abductors

**Procedure:** These are a combination of squats and lunges. Step out to the right and squat, push back to your starting stance. Step out to the left and lower to a one-leg squat, push back to your starting stance. Use no weight or a light weight with this exercise. Too much weight is risky because of the single-leg support position, the stress on the groin, and because the sideways step places some lateral stress on the knee—a type of strength you need to build, but a movement that becomes higher risk when accompanied by excessive weight. Technique and function is most important here—not the amount of weight used. I recommend using, at most, an empty 45-pound bar for this exercise. Also, as with squats and lunges, watch the position of the knee relative to the foot.

## LATERAL CROSSOVER BOX STEP-UPS

**Focus:** Gluteals, hamstrings, quadriceps, groin, abductors

**Procedure:** Standing away from and sideways to a stable box, complete a Sumo Side Lunge to step in closer to the box (see photos on the next page). With your outside leg, step over the inside leg right up onto the box. Pushing off with your foot that remains on the ground, bring the inside leg up on the box. Try to keep your shoulders and hips facing square throughout this movement to really challenge your flexibility around the hips. Use a very light weight and take as long a stride as possible—really exaggerate your range of movement.

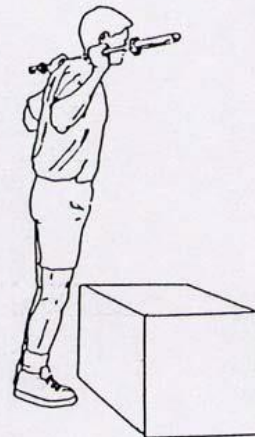


Dave Babych developed these lateral crossover box step-ups to complement a series of lateral strength, quickness, and agility exercises and drills.

## Step-Up (Free Weight)

### *Beginning Position*

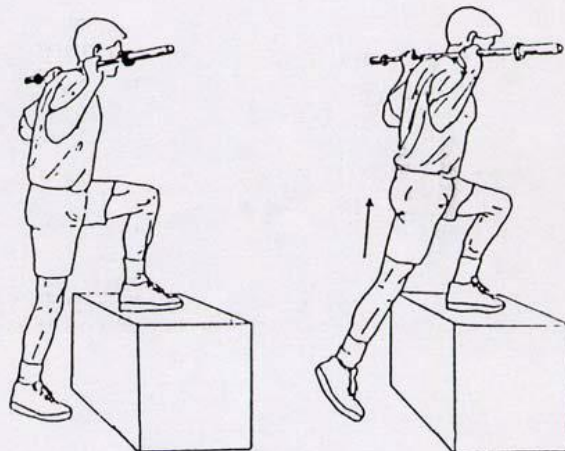
- ☐ Box should be 30 to 45 cm high (depending on which height creates a 90° angle at the knee joint when the foot is on the box).
- ☐ Position bar on shoulders.
- ☐ Stand about 30 to 45 cm from the box.
- ☐ Maintain an erect body position.



Beginning position.

### *Upward Movement Phase*

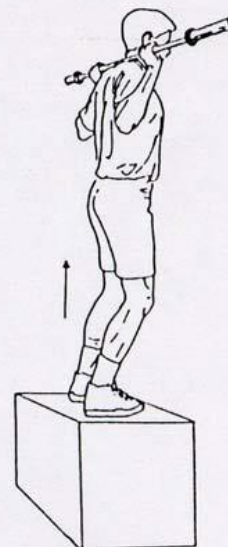
- ☐ Step with one leg (the "lead" leg) onto top of box.
- ☐ Place entire foot on the center of the top of the box.
- ☐ Toes of lead foot should point straight ahead or slightly inward.
- ☐ Do not lean forward.
- ☐ Shift body weight to lead leg.
- ☐ Push with lead leg to move body to a standing position on top of the box.
- ☐ Do not push off with trailing leg/foot.
- ☐ Maintain erect body position.
- ☐ At the top position, the hips and knees should be fully extended with feet together and body weight distributed evenly.



Upward movement.

### *Downward Movement Phase*

- ☐ Shift body weight to same lead leg.
- ☐ With the same trailing leg, step off the box (30 to 45 cm away).
- ☐ Maintain erect body position.
- ☐ Place foot of trailing leg on floor.
- ☐ At full trailing foot contact with the floor, shift body weight to trailing leg.
- ☐ Step off the box with lead leg.
- ☐ Move lead foot next to trailing foot.
- ☐ Repeat, with other leg as lead leg.



Highest position.

### *Breathing*

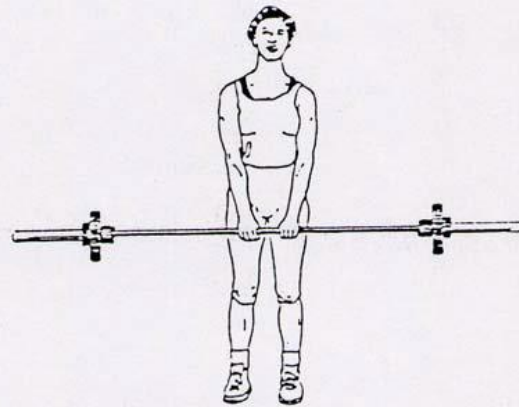
- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## Upright Row (Free Weight)

### *Beginning Position*

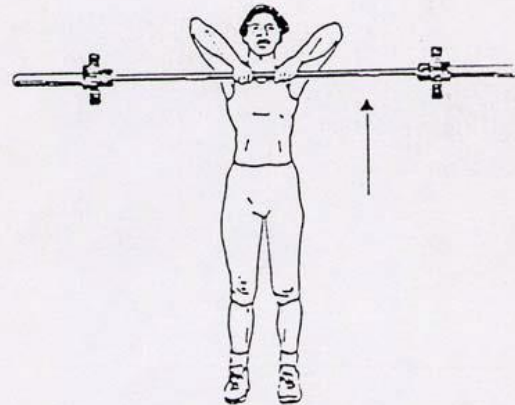
- ☐ Grasp bar with a closed, pronated grip.
- ☐ Hands should be 20 to 30 cm apart.
- ☐ Rest bar at arm's length on front of thighs.
- ☐ Assume a shoulder-width stance.
- ☐ Flex knees slightly.
- ☐ Keep torso erect.
- ☐ Point elbows outward.



Beginning position.

### *Upward Movement Phase*

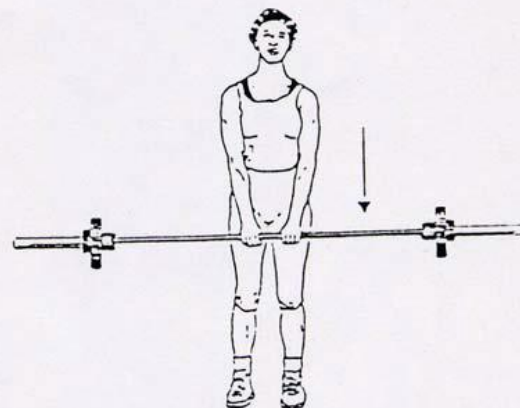
- ☐ Pull bar upward along abdomen and chest toward chin.
- ☐ Keep bar very close to the torso.
- ☐ Maintain body position.
- ☐ At top position, elbows are higher than wrists and above shoulders.
- ☐ Do not jerk or swing bar upward.



Upward movement.

### *Downward Movement Phase*

- ☐ Lower bar slowly and under control.
- ☐ Keep bar very close to the torso.
- ☐ Lower bar to full elbow extension in front of thighs.



Downward movement.

### *Breathing*

- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



## Behind-the-Neck Press (Free Weight) *MILITARY PRESS*

### **Beginning Position: Lifter**

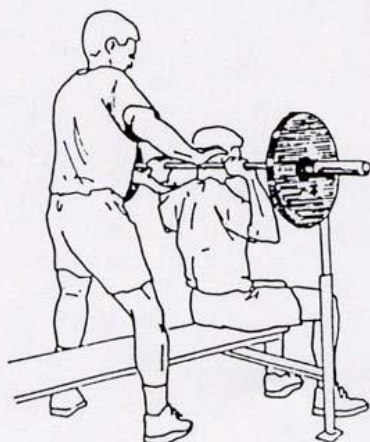
- ☐ Sit on a bench with feet on floor.
- ☐ Grasp bar with a closed, pronated grip slightly wider than shoulder-width.
- ☐ Keep head facing forward.
- ☐ Signal the spotter to assist in lifting the bar from the racks to a position behind the head on the neck.
- ☐ Signal the spotter when full control of the bar is gained.

### **Beginning Position: Spotter**

- ☐ Straddle the bench to a position behind lifter.
- ☐ Slightly flex knees.
- ☐ Grasp bar with alternated grip between lifter's hands.
- ☐ At the signal of the lifter, smoothly lift bar off racks to a position behind the lifter's head at the neck.
- ☐ Hold onto bar until lifter indicates that the bar is under control.

### **Upward Movement Phase: Lifter**

- ☐ Press the bar overhead, keeping the elbows pointed outward.
- ☐ Tilt head up to neutral position during the ascent.
- ☐ Maintain body position.



Beginning positions

### **Upward Movement Phase: Spotter**

- ☐ Maintain body position.
- ☐ Follow bar path.
- ☐ Assist only when necessary.

### **Downward Movement Phase: Lifter**

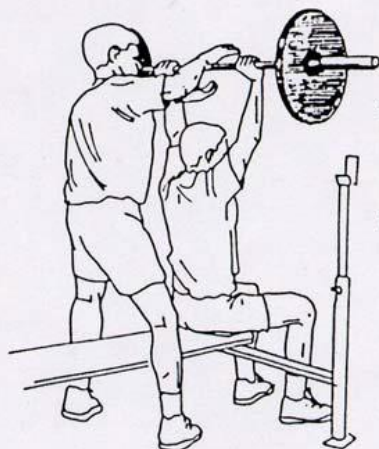
- ☐ Slightly tilt head forward during the descent.
- ☐ Slowly and under control, lower the bar to the bottom of the earlobes.
- ☐ Maintain body position.
- ☐ Forearms should be parallel to each other at the bottom position.
- ☐ At the completion of the set, signal the spotter and guide the bar back into the rack.

### **Downward Movement Phase: Spotter**

- ☐ Maintain body position.
- ☐ Follow bar path.
- ☐ Assist only when necessary.
- ☐ At the signal of the lifter, guide the bar back into the rack.

### **Breathing**

- ☐ Exhale through the sticking point of the upward movement phase.
- ☐ Inhale during the downward movement phase.



Upward and downward movement positions

## TRICEPS

### Lying Triceps Extension (Free Weight)

#### *Beginning Position: Lifter*

- ☐ Sit on one end of the bench, then lay back so head rests on other end of bench.
- ☐ Position feet flat on floor.
- ☐ Position head, shoulders, and buttocks flat on bench.
- ☐ Grasp bar with a closed, overhand grip, hands 15 to 25 cm apart.
- ☐ Position arms parallel to each other, perpendicular to floor.

#### *Beginning Position: Spotter*

- ☐ Stand at the end of the bench near the lifter's head.
- ☐ Hand bar to lifter.

#### *Downward Movement Phase: Lifter*

- ☐ Maintain body position on bench.
- ☐ Lower bar slowly and under control, to the forehead.
- ☐ Upper arms remain perpendicular to floor and parallel to each other.

#### *Downward Movement Phase: Spotter*

- ☐ Keep hands under bar to protect lifter's head

#### *Upward Movement Phase: Lifter*

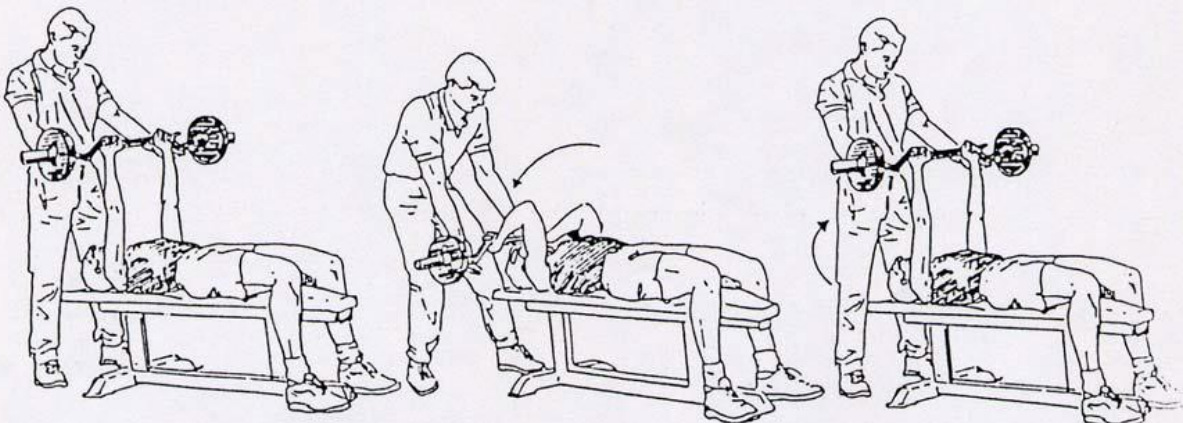
- ☐ Push bar until elbows are fully extended.
- ☐ Upper arms remain perpendicular to floor and parallel to each other.
- ☐ Maintain body position on bench.

#### *Upward Movement Phase: Spotter*

- ☐ Assist lifter only if necessary.
- ☐ Take bar from lifter at the end of the set.

#### *Breathing*

- ☐ Inhale during the downward movement phase
- ☐ Exhale through the sticking point of the upward movement phase.



Beginning positions.

Downward movement positions.

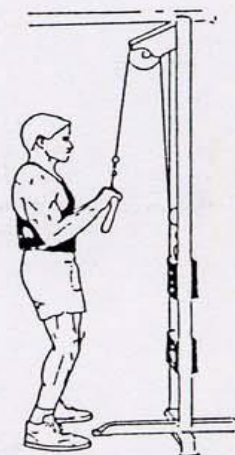
Upward movement positions



## Triceps Pushdown (Machine)

### *Beginning Position*

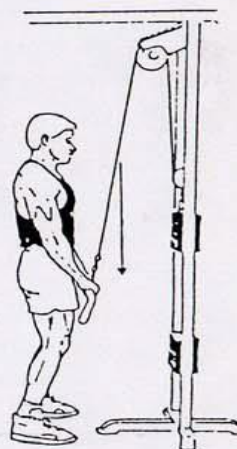
- ☐ Grasp bar with a closed, pronated grip 10 to 15 cm apart.
- ☐ Position feet shoulder-width apart, knees slightly flexed.
- ☐ Establish upright body position.
- ☐ Move bar down to position elbows next to torso with forearms parallel to floor.



Beginning position.

### *Downward Movement Phase*

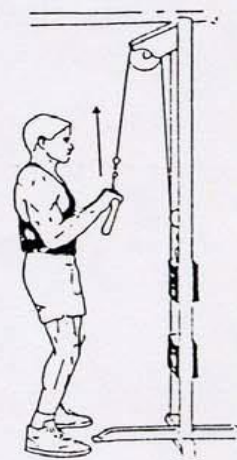
- ☐ Keep elbows next to torso.
- ☐ Push bar down to full elbow extension.
- ☐ Maintain upright body position.
- ☐ Do not forcefully extend elbows.



Downward movement.

### *Upward Movement Phase*

- ☐ Keep elbows next to torso.
- ☐ Allow the bar to rise slowly under control.
- ☐ Maintain upright body position.
- ☐ Stop bar when forearms are parallel to floor.



Upward movement.

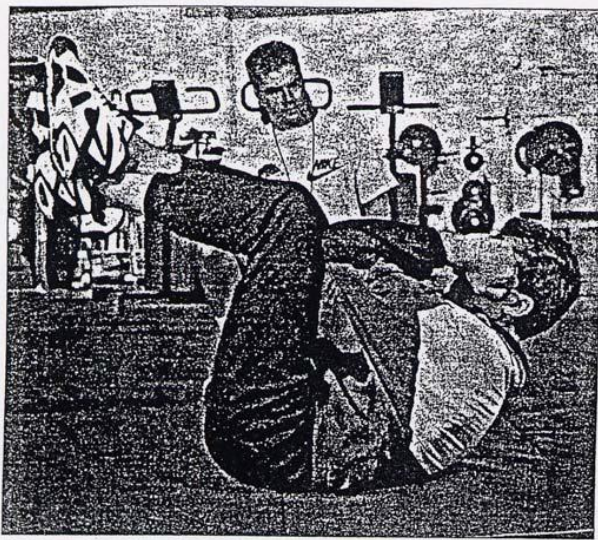
### *Breathing*

- ☐ Exhale through the sticking point of the downward movement phase.
- ☐ Inhale during the upward movement phase.

## CRUNCHES

Focus: Abdominals

Procedure: Lie on your back, knees flexed to 90 degrees and feet in the air. Place your hands at the side of your head. "Crunch" your abdominals together, curling your elbows toward your knees and pulling your knees up and in toward your head. Meet in the middle and slowly lower back to the starting position.



Tim Hunter demonstrates proper crunch positioning.

## LOWER AB PUSH PRESS

Focus: Lower abdominals

Procedure: Lie on your back with your legs straight up in the air, feet together. Place your hands on the floor under your buttocks. Using your lower abdominals, push your legs toward the ceiling. Think of pushing the bottom of your feet toward the ceiling. Your legs move straight up and down by moving your hips two to six inches in the air.



Conditioning coach Pete Twist gives Tim Hunter a target to push his feet up toward during the lower abdominal push press.

# Plyometric Training

## **PLYOMETRICS**

**Plyometrics** refers to exercises that enable a muscle to reach maximal strength in as short a time as possible. Plyometric exercises are especially useful in sports that require speed strength or the ability to exert maximum force during high-speed movements.

Plyometrics are the best type of exercises to ready the player for on-ice quickness and agility. These drills are characterized by jumping, hopping, bounding and a variety of foot patterns. Plyometrics involve a rapid eccentric (muscle lengthening) contraction immediately before a concentric (muscle shortening) contraction, which allows for a more powerful concentric contraction. You see this type of movement during the quick back swing prior to an explosive slap shot or the quick stop with rapid knee flexion and then immediately exploding into action in the opposite direction.

An effective countermovement is evident when defensemen prepare for open-ice body checks. When approaching an opponent, just prior to the hit a defenseman will quickly drop at the hips and bend at the knees, then immediately explode in the opposite direction to deliver the body check. You can't build nonspecific strength and muscle mass and then just hope to be able to harness your increased size and strength in a game for hockey-specific, velocity specific actions.

**Proper Landing Technique: When landing while performing the plyometric exercises it is important that the shoulders be over the knees, by flexion of the ankles, knees and hip.**

### **Guidelines**

1. It is important to stretch and warm-up before and stretch after to prevent muscle soreness until your muscles become more accustomed to the stretch/contraction.
2. Move as fast, as hard and as far laterally or horizontally as you can during the "jump" time.
3. Practice quickly reversing movement and exploding in the opposite direction. (Explosive movements)
4. Be sure to have solid support on all benches used during plyometric training.
5. Increase foot quickness by "popping" your feet off the ground.
6. Eliminate the pause that occurs at the exact point where the direction of movement is going to reverse.

A pause between lowering and pushing off will lose the potential elastic energy and turn off the muscle sensors, detracting from the potential power and explosiveness of the push off.

7. Instead of increasing vertical distances, increase both lateral and linear horizontal distances.
8. Adhere to the training schedule for number of reps and sets.
9. Perform all plyometric exercises in order.
10. Perform the plyometric exercises on the days according to the training log.

### **Plyometric Exercises**

Please refer to the following pages for diagrams and descriptions of the plyometric exercises you will be using in the training program. The exercises that you will be using include jumps in place, standing jumps, hops, bounds, shocks, and upper body drills.



## JUMPS IN PLACE

### Split Squat Jump

*Intensity level:* Low.

*Starting position:* Assume a stance with one leg extended forward and the other oriented behind the midline of the body as in a lunge position. The forward leg should be almost fully extended.

*Direction of jump:* Vertical.

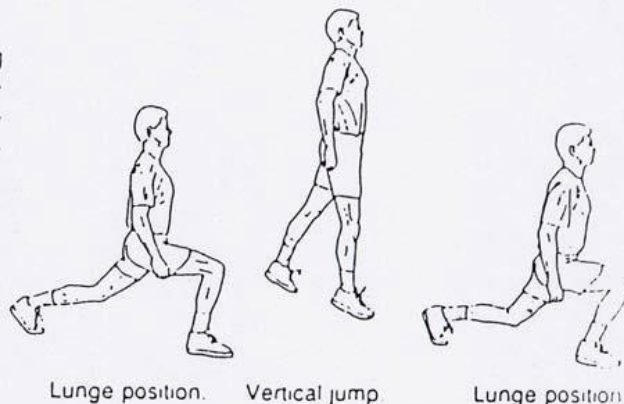
*Arm action:* None, or double arm action.

*Starting action:* Start with a countermovement of approximately 6 to 10 in. (15-25 cm).

*Ascent:* Explosively jump off the front leg, using the calves (plantar flexion) of the back leg.

*Descent:* When landing, maintain the lunge position (same leg forward) and immediately repeat the jump.

*Volume:* 10 repetitions.



After completing a set, rest and switch front legs (1).

### Cycled Split Squat Jump

*Intensity level:* Low.

*Starting position:* Assume a stance with one leg extended forward and the other oriented behind the midline of the body as in a lunge position. The forward leg should be almost fully extended.

*Direction of jump:* Vertical.

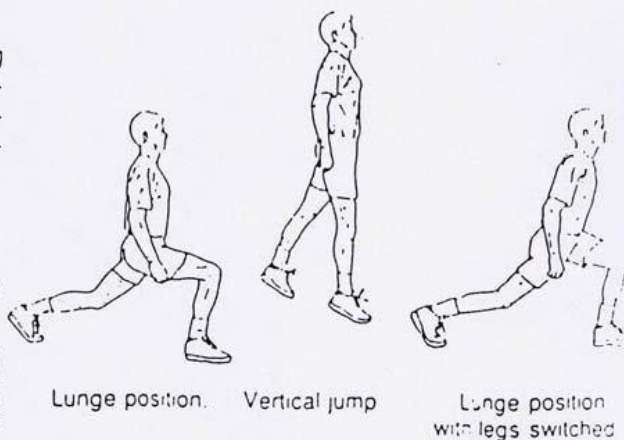
*Arm action:* None, or double arm action.

*Starting action:* Start with a countermovement of approximately 6 to 10 in. (15-25 cm).

*Ascent:* The jumping action is the same as that of the Split Squat Jump, except the legs are quickly switched from front to back while in midair before landing. Maximum height and power should be emphasized.

*Descent:* Land in the lunge position and immediately repeat the jump.

*Volume:* 10 repetitions (1).



## Squat Jump

*Intensity level:* Low.

*Starting position:* Half-squat position (thigh parallel with the ground) with feet shoulder-width apart. Interlock fingers and place hands behind head.

*Direction of jump:* Vertical.

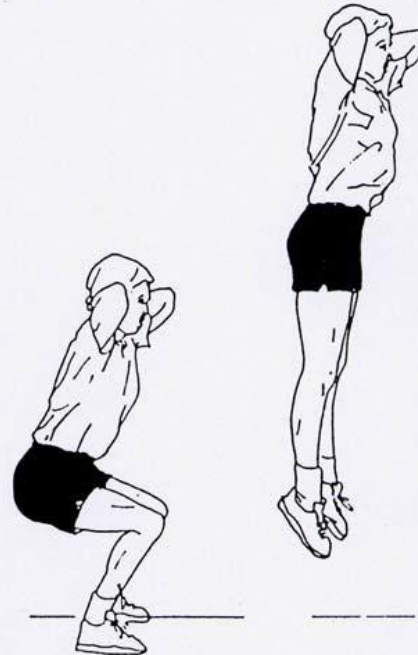
*Arm action:* None.

*Starting action:* Start movement by explosively jumping to maximum height.

*Descent:* Upon landing immediately go into half-squat position and, without pause, repeat exercise.

*Volume:* 10 repetitions.

The Squat Jump utilizes a deeper countermovement as compared to other jumps, so the amortization phase is the longest of all drills listed (1).



Half squat position.

Vertical jump.

## Pike Jump

*Intensity level:* Medium.

*Starting position:* Assume a comfortable upright stance with feet shoulder-width apart.

*Direction of jump:* Vertical.

*Arm action:* Double arm action.

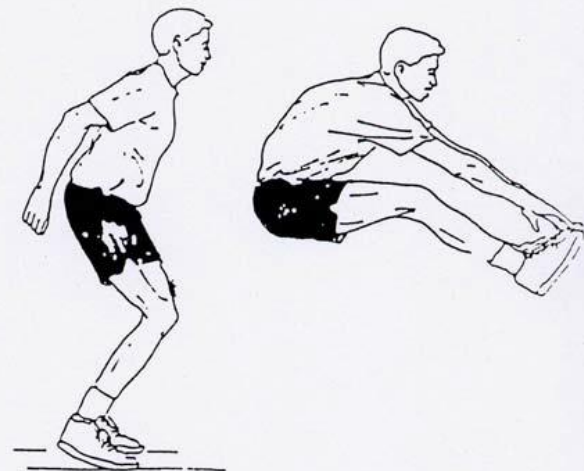
*Starting action:* Begin with a rapid countermovement as in performing a vertical jump.

*Ascent:* Immediately explode upward. Keeping the legs straight, try to lift them to a position parallel to the floor and touch the toes (pike position) with the hands.

*Descent:* Upon landing, immediately repeat this sequence, concentrating on lifting the straight legs upward.

*Volume:* 10 repetitions (1).

Perform the repetitions at the same semirapid rate, emphasizing minimum contact time on the ground.



Counter movement.

Legs in near parallel position.

## Double Leg Tuck Jump

*Intensity level:* Medium.

*Starting position:* Assume a comfortable upright stance with feet shoulder-width apart.

*Direction of jump:* Vertical.

*Arm action:* Double arm action.

*Starting action:* Begin with a rapid countermovement.

*Ascent:* Immediately explode upward. Pull the knees high to the chest and quickly grasp the knees with the hands and release.

*Descent:* Upon landing, perform the next jump after minimal contact time on the ground.

*Volume:* 10 repetitions (1).

Concentrate on flexing and pulling the knees upward in this drill.



Upright stance

Knees to chest

## Double Leg Vertical Power Jump

*Intensity level:* High.

*Starting position:* Stand with the feet shoulder-width apart.

*Direction of jump:* Vertical.

*Arm action:* Double arm action.

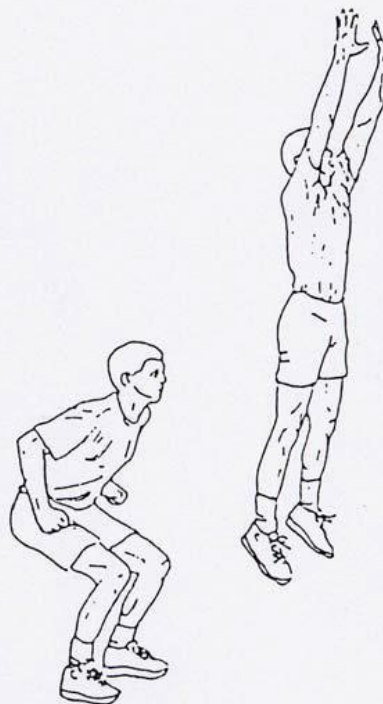
*Starting action:* Perform a rapid countermovement and jump as high as possible.

*Ascent:* Thrust arms upward vigorously and reach as high as possible with one or two hands.

*Descent:* When the feet hit the ground, jump again immediately without a stutter step.

*Volume:* 10 repetitions.

The jump is often performed against a wall or a free-standing device that measures jump height, with the athlete touching as high as possible (1).



Counter movement.

Vertical jump.



## Single Leg Vertical Power Jump

*Intensity level:* High.

*Starting position:* Stand with one foot on the ground.

*Direction of jump:* Vertical.

*Arm action:* Double arm action.

*Starting action:* Perform a rapid countermovement and jump as high as possible.

*Ascent:* The arms should be thrust vigorously upward with each jump and reach as high as possible with one or two hands.

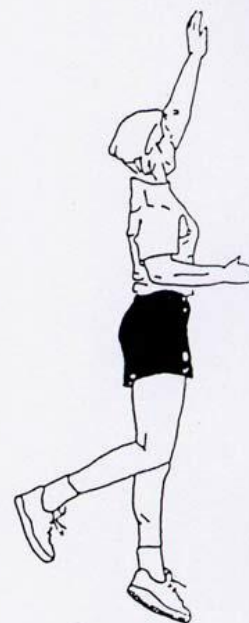
*Descent:* When the feet hit the ground, immediately jump without a stutter step.

*Volume:* 10 repetitions.

Emphasis should be on maximum height and quick explosive takeoffs. Repeat this exercise with the opposite leg after a brief rest (15-30 s). This jump is often performed against a wall or free-standing device that measures jump height, with the athlete touching as high as possible (1).



One foot stance.



Vertical jump

## Single Leg Tuck Jump

*Intensity level:* High.

*Starting position:* Assume a comfortable upright stance on one foot.

*Direction of jump:* Vertical.

*Arm action:* Double arm action.

*Starting action:* Begin with a rapid countermovement.

*Ascent:* Immediately explode upward. Pull the knee of the jumping leg high to the chest and quickly grasp the knee with the hands and release.

*Descent:* Upon landing, perform the next jump after minimal contact time on the ground.

*Volume:* 10 repetitions.

Concentrate on flexing and pulling the knee upward in this drill. Hold the nonjumping leg in a stationary position with the knee flexed during the exercise (1). Repeat this exercise with the opposite leg after a brief rest (15-30 s).



One foot stance.



Knee to chest

# HOPS

## Double or Single Leg Zigzag Hop (short response)

*Intensity level:* Medium.

*Starting position:* Place about 10 cones (or bags) 45 to 60 cm apart in a zigzag pattern. Begin with the feet shoulder-width apart, arms flexed at a 90° angle and at the sides of the body.

*Direction of jump:* Diagonal.

*Arm action:* Double arm action.

*Starting action:* Jump diagonally over the first cone.

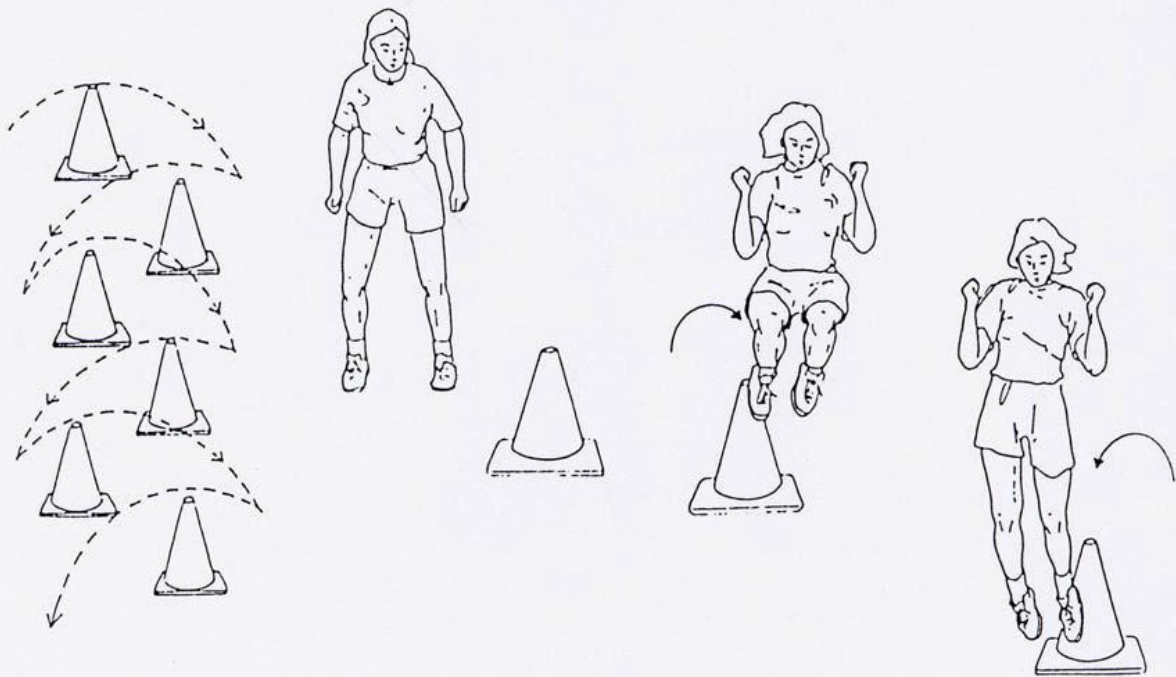
*Ascent:* Propel the body in a forward diagonal direction and keep the shoulders perpendicular to an imaginary (or actual) straight line through the center of all cones.

lar to an imaginary (or actual) straight line through the center of all cones.

*Descent:* Immediately upon landing, change direction and jump diagonally over the second cone. Continue, hopping over all the cones.

*Volume:* 10 repetitions.

Emphasize explosive hops and try to attain maximum height. Think about "hanging" in the air (1).



Cone placement.

Starting position.

Jump over first cone.

Jump over second cone—opposite direction.



## Double Leg Hop

*Intensity level:* Medium.

*Starting position:* Stand with feet shoulder-width apart.

*Direction of jump:* Horizontal, with a vertical component as well.

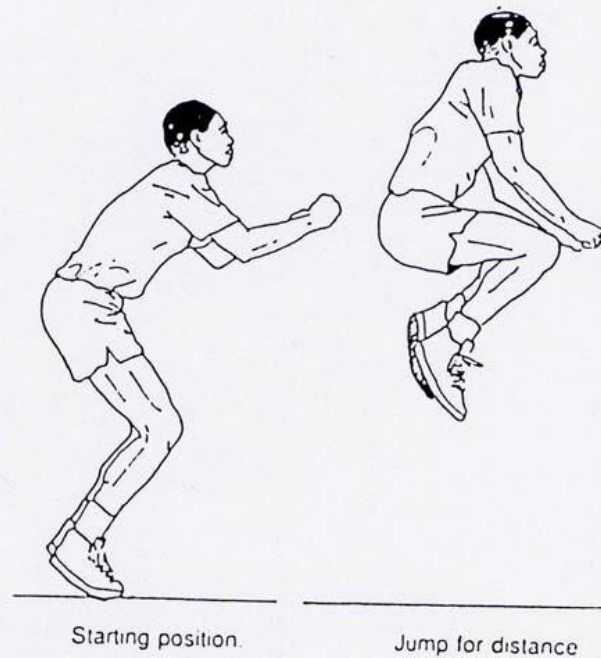
*Arm action:* Double arm action.

*Starting action:* Jump off of both legs and strive for maximal distance.

*Ascent:* Think about "hanging in the air."

*Descent:* Land in the starting position and immediately repeat the movement.

*Volume:* 10 repetitions for short response, or 30 m or more for long response (1).



## Double Leg Speed Hop

*Intensity level:* High.

*Starting position:* Stand with slight flexion in ankles, knees, and hips.

*Direction of jump:* Horizontal.

*Arm action:* Double arm action.

*Starting action:* Jump out and up, trying to reach maximal distance and some height.

*Ascent:* Jump as far as possible; flex the knees to bring the feet under the buttocks, but not as much as in the double leg hop.

*Descent:* Land in the starting position and immediately repeat the movement.

*Volume:* 10 repetitions for short response, or 30 m or more for long response.

Concentrate on keeping the feet together during the hops because the feet will want to spread to about shoulder width. When this occurs the feet will not touch the ground at the same time. In order of importance, the major goals of this drill are speed, distance, and height (1).



Starting position.



Jump for distance.

## Single Leg Speed Hop

*Intensity level:* High

*Starting position:* Stand with one foot slightly in front of the other, with slight flexion in the ankles, knees, and hips. Arms should be flexed at 90° with upper arm close to upper body.

*Direction of jump:* Horizontal.

*Arm action:* Double arm action.

*Starting action:* Use a rocker step (or jog into the starting position) to push off the front leg and drive the knee of the front leg out and up. Jump out and up, trying to reach maximal distance and some height.

*Ascent:* Flex the legs to bring the feet under the buttocks, but not as much as in the leg bound.

*Descent:* Land in the starting position and immediately repeat the movement.

*Volume:* 10 repetitions for short response, or 30 m or more for long response. If this drill is used as a field test, the distance should be 25 m.

In order of importance, the major goals of this drill are speed, distance, and height (1). After a short rest repeat with the other leg. The rest period should be 1 to 1-1/2 min for short response and 2 to 3 min for long response.



Starting position.



Jump for distance and height

# SHOCKS

## Box Jumps

*Intensity level:* Shock.

*Starting position:* Place four to eight wooden boxes evenly, 1 to 2 m apart; or one box may be used. Stand about 0.6 m in front of the first box. Feet should be shoulder-width apart; ankles, knees, and hips slightly flexed; head up; and arms at the sides.

*Direction of jump:* Vertical and horizontal.

*Arm action:* Double or single arm action.

*Starting action:* Jump upward and forward to land on the first box. Foot contact may be either one or two feet. (Only athletes of adequate strength and conditioning base, extensive

background in plyometrics, and less than 100 kg should perform this drill with one leg.)

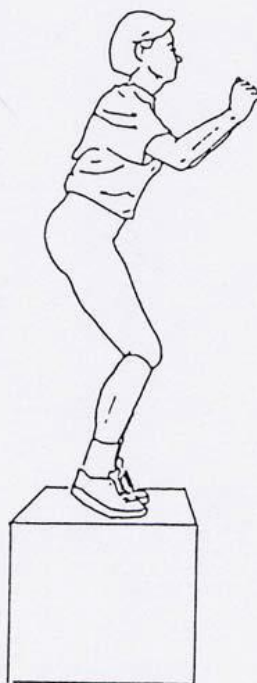
*Ascent:* Explode upward onto the first box.

*Descent:* As soon as you land on the box, explode again as high and/or far forward as possible. The distance between boxes depends on the amount of horizontal movement desired. Upon landing on the ground, immediately jump to the next box and continue. If only one box is used, when contacting the ground after jumping off the box immediately jump up or forward as far as possible.

*Volume:* Two to four sets of 5 to 10 repetitions (1).



Starting position.



Jump onto box.



Jump from box.



## Drop-and-Catch Push-Up (or Drop Push-Up)

*Note.* Drop-and-Catch Push-Up is described. Drop Push-Up (without partner) is shown.

*Intensity level:* Shock.

*Starting position:* The subject kneels on the ground with a near vertical torso. The partner stands with feet on both sides of the subject's calves.

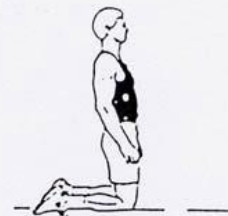
*Direction of movement:* Vertical.

*Standing action:* Partner grasps the subject under the armpits with hands on the anterior deltoid or chest. The partner lifts the subject to a 45° angle until the subject's knees come off the ground.

*Descent:* The partner then releases the subject, who, with extended but slightly flexed arms, contacts the ground, allowing the force to flex the elbows. The subject drops down until the chest almost touches the ground.

*Ascent:* The subject rapidly extends the arms to full length. The extension should be forceful enough to propel the upper body close to the starting position. The partner may either catch the subject in the air and repeat the exercise or, if the subject lacks power to obtain sufficient height, allow the subject to fall back to the ground and then repeat the exercise from the starting position.

*Volume* 10 repetitions (14,16)



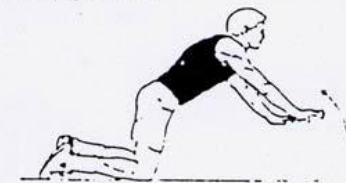
Starting position.



Drop down.



Bottom of push-up position.



Extend arms

## Plyometric Sit-Up

*Intensity level:* Low.

*Starting position:* Lie on the back with the legs slightly flexed and perpendicular to the floor. A partner stands with his or her feet on each side of the subject's head, facing the subject's feet. The partner grasps the subject's ankles and the subject grasps the partner's ankles.

*Direction of the movement:* Vertical.

*Starting action:* The partner thrusts the subject's legs toward the ground by rapidly extending the arms.

*Descent:* The subject provides slight resistance to the partner's push and allows the legs to slightly accelerate towards the floor.

*Ascent:* The subject quickly lifts the legs to the perpendicular position before they touch the floor.

*Volume* 10 repetitions (16).



Starting position



Leg thrust

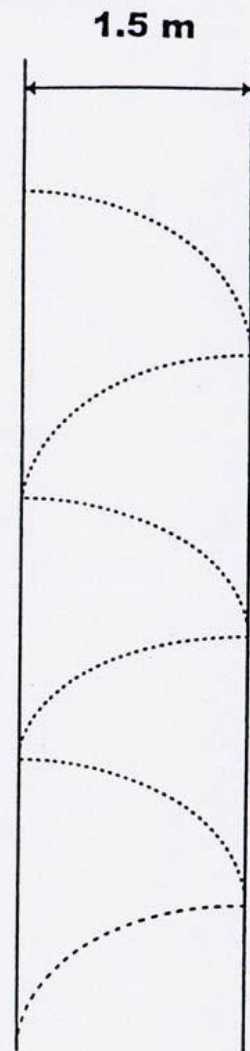


Leg lift



# SKATE STRIDE JUMP

- **Equipment:** Two parallel lines
- **Start:** Start in a low skating position. Forcefully push off at a  $45^\circ$  angle and then continue the movement as quickly and explosively as possible. Complete the required sets and reps as prescribed.



# Aerobic Training

## AEROBIC TRAINING

Aerobic power refers to energy produced by the aerobic energy system (also known as the oxygen energy system). Its level is determined by measuring the rate at which the body can breathe in oxygen to the lungs, transfer oxygen from the lungs to the heart, deliver the oxygen through the blood to the working muscles, extract the oxygen from the blood to the muscles, and use the oxygen in the muscles for energy production. Aerobic power is expressed as VO<sub>2</sub> max, the maximum volume of oxygen that can be taken up and used by the body (ml/kg-min).

The aerobic energy system supplies energy for low intensity exercises for a long duration. A one-hour bike ride at a comfortable pace, for example would be fueled by the aerobic system.

***The Aerobic system is a system of supply and recovery: It supplies energy for submaximal efforts and helps players recover after intense action. A strong aerobic base allows a player to work longer and at higher intensity by postponing fatigue and allowing speedy recovery. During conditioning work, an aerobic base helps athletes recover between sets and between workouts.***

General aerobic fitness is important in hockey because the body uses both specific and nonspecific muscle fibers to recover between shifts. We build aerobic fitness through exercises like running, climbing stairs or biking. Each of these activities uses muscles nonspecific to ice hockey will benefit the hockey player during a game. Post-game aerobic exercise will accelerate the recovery process. An easy 15-20 minute bike ride following intense games or practices will help remove lactic acid from your legs.

### Objectives to Aerobic Training

1. Increase your capacity to work (skate) at a steady pace longer and harder.
2. Aerobic training provides a more efficient transport of oxygen throughout the body.
3. This provides a solid base for anaerobic training, which will be done on the ice.
4. A good aerobic base helps you recover more quickly from heavy traveling and physical play.
5. It helps you play more consistently throughout the whole regular season and playoffs.
6. Aerobic training helps you maintain a very high tempo during practice and games.
7. Helps you better sustain the pace of the game in the latter stages of each period, *especially* the third period.

### Why we do off-ice aerobic training

1. Aerobic endurance improves off the ice.
2. Aerobic endurance must be improved during the season. Ice time is not sufficient to raise the maximum oxygen uptake (Max Vo<sub>2</sub>) to the level found in endurance players.
3. Ten to Eleven weeks of training is required to reach high levels of conditioning.
4. Your lungs become stronger and your heart beats less often. The blood carries more oxygen to your muscles and the circulatory system becomes more efficient.

***Aerobic training should be performed 2 to 3 days per week during the season.***



## **A typical Aerobic work out**

### **1. Warm-up**

- a. Get heart rate up to 150 beats/min. (2-5 min.)
- b. The warm-up should be specific to the activity you have chosen
- c. (Stationary bike, cycle, running, roller-blades etc.)

### **2. Stretch**

- a. You should stretch after the warm-up for 5-10 minutes.

### **3. Training Duration**

- a. Continuous for 30-45 minutes.
- b. **The bike and stair master programs outlined below are to be used for 2 out of three of your weekly aerobic work-outs.** Other activities that may be done for the third weekly aerobic workout include running, cycling, skipping and rollerblading.

### **4. Training Pace**

- a. Continuous steady pace with a 70-85% maximum heart rate or 150-170 beats/min.

### **5. Record your miles and activity.**

- a. Record the activity you did in the space provided on the training log and also record the number of miles.

## **Aerobic Bike Work-outs (Machine)**

### **PHASE 1 (Week 1)**

*45 - Minute duration*

- Stage 1 (15 minutes) Level 5
- Stage 2 (15 minutes) Level 7
- Stage 3 (15 minutes) Level 5

### **PHASE 2 & 3 (Week 7)**

*45 - Minute duration*

- Stage 1 (11.25 minutes) Level 5
- Stage 2 (11.25 minutes) Level 7
- Stage 3 (11.25 minutes) Level 9
- Stage 4 (11.25 minutes) Level 5

## **Other Aerobic Training Exercises**

Some other aerobic activities include cycling, running, skipping and rollerblading. To be effective in developing your aerobic capacity should be done at a steady rate with a heart rate of 150-170 beats per minute.

### **1. Cycling**

- a. Use proper equipment.
- b. Avoid biking high incline hills.

### **2. Running**

- a. Use proper footwear.
- b. Avoid roads with heavy auto traffic.
- c. Avoid running up high incline hills.

### **3. Rollerblades**

- a. Avoid roads with heavy traffic.
- b. This exercise is most specific to hockey.
- c. Avoid skating up hills with steep inclines.

### **Things to Remember When Aerobic Training**

- Wear Proper footwear.
- Wear light cotton clothing. Avoid rubber suits or weight loss belts, these are dangerous.
- Drink plenty of water before, during and after exercises.

### **How to Take Your Pulse**

#### **What is a pulse?**

- Pulse or heart rate is the equivalent of a speedometer whereby the heart beats per minute tells you how strenuously your body needs to work to achieve the desired fitness level.

#### **Why should you take your pulse?**

- The heart, like any other muscle, can be strengthened by a progressive training program, which demands more blood flow, thus causing the heart rate to increase.
- You must train hard enough to condition the cardiovascular system, but not too hard to damage the system.

### **Endurance**

- a. Warm-up - 60% Max. (120 BPM)
- b. Low Intensity - 70-85% Max. (150-170 BPM)
- c. Recovery Phase - 60-70% Max. (120-135 BPM)
- d. Cool Down - 50-60% Max. (100-120 BPM)

### **How do you take your pulse?**

- Take the pulse at your neck or wrist.
- Count the beats for 10 seconds and multiply by 6 to obtain the heart rate per minute.
- Place the middle three fingers of one hand along the back edge of the Adams apple and locate the pulse at the side of the neck.

### **How to record your aerobic training work out on your Training Log**

- In the space on your training log next to the aerobic workout specified for that day record the activity you performed and the number of miles you traveled.

# Anaerobic Training



## **ANAEROBIC TRAINING**

Having established a sound base of aerobic power and capacity in stage one; stage two concentrates on developing a high level of anaerobic power. A metabolic by-product of anaerobic work is lactic acid: our ability to withstand high concentrations of it is of great importance in hockey. That is, it has implications to both the length and intensity of your shift, but also the recovery time you require before you can return to the ice.

Poorly conditioned legs will fatigue early. When fatigued, players cannot generate much stride power. They tend to straighten their legs and have little “jump” in their stride. Fatigued players with straightened legs tend to slow down, stumble, and are more easily knocked down by their opponents. To handle sharp pivots, high speed crossovers, explosive acceleration, and crushing blows it is important for players to maintain a deep knee-bend, with hips low and their knee over the front foot. By improving anaerobic conditioning, players can achieve this for longer periods.

Anaerobic conditioning raises the lactate threshold, which allows players to compete at a higher intensity before the accumulation of the lactic acid exceeds its removal. The energy production system becomes more efficient, as less lactic acid is produced at a given work intensity. Intense anaerobic conditioning also promotes lactic acid toleration, so that once your legs fatigue and lactic acid builds up, you are accustomed to the feeling. Training develops the mental strength needed to keep playing for a few more seconds. This could be critical when stuck in your end for a long time, killing a penalty, or at the end of a shift when you block a shot at the point and suddenly have a breakaway opportunity. To be properly prepared for the extreme demands of hockey, players need to condition at a higher intensity than they will face during a game. “It is better to do a 20-minute workout all-out than 40 minutes at half speed,” stresses George Nevole, former strength coach at Cornell University.

### **Sprint Intervals**

To develop anaerobic energy systems, players should use sprint intervals. These involve a full-out high intensity, high-speed interval followed by a rest or active relief interval. In the initial stages of anaerobic training use 30 second intervals and progress to 45-second intervals. Forty five second intervals are specific to the length of a hockey shift and correlates with anaerobic glycolysis’ peak energy production.

In the early stages of anaerobic interval training use a work to rest ratio of 1:4, which is an optimal ratio for developing anaerobically. As the anaerobic energy systems become further developed a player should decrease the relief period to close in on the actual game situation. Specific to hockey, a forward may have a 1:3 or 1:2 work-to-rest ratio, while some defensemen may have a 1:1 work-to-rest ratio. That is if he sprints for 45 seconds, the relief period is 45 seconds.

Towards improving your anaerobic power, three physiological principles must be incorporated into your training sessions:

- a. Achieve high lactic acid levels.
- b. Allow sufficient rest intervals between training bouts.

**The following are the exercises that should be used to train your anaerobic system.**  
**Sprints - Stationary bike, Track, Rollerblades**

**1. Stationary Bike Sprinting**

The following are the three interval programs that you can use for anaerobic training sessions in Phase 1, Phase 2 and Phase 3 of the training program.

**PHASE 1 (Week 1)**

*(1:4 work-to-rest ratio) Total time 35 minutes*

1. 00:05:00 Warm-up (5 minutes)
  2. 00:05:30 Set bike to highest level and sprint all-out (30 seconds)
  3. 00:07:30 Set bike to lowest level and peddle easy (2 minutes)
- (Repeat steps 2 and 3 - 10 times)***
4. 00:30:00 Cool down, peddle easy (5 minutes)

**PHASE 2 (Week 7)**

*(1:3 work-to-rest ratio) Total time 30 minutes*

1. 00:05:00 Warm-up (5 minutes)
  2. 00:05:30 Sprint all-out (30 seconds)
  3. 00:07:00 Set bike to lowest level and peddle easy (1 minute and 30 seconds)
- (Repeat steps 2 and 3 - 10 times)***
4. 00:25:00 Cool down, peddle easy (5 minutes)

**PHASE 3 (Week 11)**

*(1:2 work-to-rest ratio) Total time 20 minutes*

1. 00:05:00 Warm-up (5 minutes)
  2. 00:05:30 Sprint all-out (30 seconds)
  3. 00:06:30 Set bike to lowest level and peddle easy (1 minute)
- (Repeat steps 2 and 3 - 10 times)***
4. 00:15:00 Cool down, peddle easy (5 minutes)

**2. Running or Rollerblading**

**PHASE 1 (Week 1)**

*Total time 30 minutes*

1. Warm-up – 1 lap and stretch
2. Sprint 5 yds – 8 reps – 20 sec rest
3. Rest 2 minutes
4. Sprint 10 yds – 8 reps – 30 sec rest
5. Rest 3 minutes
6. Sprint 20 yds – 6 reps – 40 sec rest

**PHASE 2 (Week 7)**

**Day 1**

1. Warm-up – 1 lap and stretch
2. Sprint 5 yards – 10 Reps – 20 sec rest
3. Rest 3 minutes
4. Sprint 10 yards – 10 Reps – 30 sec rest
5. Cool Down

**Day 2**

1. Warm-up – 1 lap and stretch
1. Sprint 40 yards – 6 Reps – 30 sec rest
2. Rest 2 minutes
3. Sprint 80 yards – 3 Reps – 40 sec rest
4. Rest 3 minutes
5. Sprint 100 yards – 3 Reps – 60 sec rest
6. Rest 3 minutes
7. Sprint 200 yards – 2 Reps – 90 sec rest

**PHASE 3 (Week 11)**

**Day 1**

1. Warm-up – 1 lap and stretch
2. Sprint 10 yards – 10 Reps – 30 sec rest
3. Rest 3 minutes
4. Sprint 20 yards – 10 Reps – 30 sec rest
5. Cool Down

**Day 2**

1. Warm-up – 1 lap and stretch
1. Sprint 40 yards – 4 Reps – 30 sec rest btwn reps
2. Rest 2 minutes
3. Sprint 80 yards – 2 Reps – 40 sec rest
4. Rest 3 minutes
5. Sprint 100 yards – 2 Reps – 60 sec rest
6. Rest 3 minutes
7. Sprint 200 yards – 4 Reps – 90 sec rest

### **Anaerobic Endurance Test**

Self Test: Sprinting - This is a practical anaerobic off-ice field test for Hockey players.

- a. Sprint a distance of 50 yards.
- b. Rest 10 Seconds.
- c. Repeat the above so that you have run 7 sprints.
- d. Time each of the 50-yard sprints.
- e. Total the times for the 7 sprints.
- f. Your score for the total sprinting time should be less than 50 seconds.

**How to record your anaerobic training work out on your Training Log:**

- **Find the anaerobic training log table on the reverse side of the training log card.**
- **Under the appropriate day record the activity you complete**



# Agility Training

## AGILITY TRAINING

**Quickness** is the first-step explosion from a stationary position. It is reacting and exploding into action (*Explosive Speed*). Hockey is a game of one-on-one battles and races for loose pucks. The ability to initiate movement faster than opponents is critical-teams rarely lose if they are consistently the first to the puck and always right on top of the play.

Although the media marvels at Pavel Bure's speed, the Russian Rocket's explosiveness is fueled by quickness. His quickness is so great that he can be at his top speed in just two or three strides. Other players may be faster, but they take the whole length of the ice before they reach their top speed. Pavel wins races for loose pucks not because of his speed, but because of his incredible quickness-that first step explosiveness.

***"He does not have the best top speed, but he reaches his top speed first."***

Most critical game-breaking plays start with quickness. For Bure, being able to cut on a dime and explode two strides laterally while carrying the puck is what positioned him for the breakaway everyone notices. As stated by Murray Craven of the Chicago Blackhawks, "Today in hockey, all players are bigger, stronger and faster than they used to be." It is often quickness that separates a junior player from a college player and a college player from an NHL player. It's that first couple of steps to get to loose pucks, to get to pucks in front of the net-that's what makes big goal scorers these days.

Quickness is also invaluable when a player is skating down the ice at or near top speed. During a one-on-one, full out speed is easy for a defenseman to stay with and contain-because it is predictable and the defenseman simply adjusts his backward skating speed and his angles relative to the speed of the oncoming forward. But if a forward is sprinting down the wing, and , when getting close to the defenseman, can instantaneously adjust his speed, rapidly alternating between decelerating and accelerating, the defenseman is challenged to continually read and react to cover the forward. When the forward sees the defenseman shift his weight in trying to react to the forward's quick change in speed (decelerating), the forward can then explode to the highest speed and move around the defenseman.

**Agility** is the ability to rapidly change position of the entire body in space with speed and accuracy. There are two types of agility, general and specific. In hockey, general agility (total body agility) would be maneuvering the body around an opponent. Specific agility is the rapid maneuverability of the hands and arms as in stick handling.

The ability to evade an opponent, or likewise in a defensive position to stay with and contain an opponent, depends on agility. All dynamic movements in a small area require agility, even if you are away from the play. During a sudden transition you want to be able to rapidly change your body position and direction to prepare yourself for the play.

Defensemen need to be able to shift their body to pivot or turn forward and backward so they are always facing the play and the puck, or stay with and cover their opponent. On the puck or off the puck agility is a critical component.

Quickness and agility, though two distinct parameters are teamed together because hockey is a multidirectional sport over short distances. Quickness can be thought of as “first gear” of speed and is best represented by first step explosiveness. When it is combined with agility you, you get first step explosiveness is a variety of complex movement patterns-forward skating, backward, lateral movement, 45 degree angles, directional changes, rotations, pivots, and complex movements that involve very rapid continual transfer from one movement into another, usually over just a few feet.

Being able to combine quickness and agility is the most important skill in hockey. During a game, quickness and agility are manifested in many ways: for the draw on a face-off, to drop down and position the body to block a shot or make a save, to cross over and accelerate away from an opponent, to quickly stop and control the body to maintain a defensive position, to shoot the puck, and to deliver a body check. Quickness and agility development helps less skilled players become more skilled, and highly skilled players become even better.

Quickness and agility training is **QUALITY** training –not quantity. You want full out efforts for a few strides followed by active recovery. Improvement is not a physical adaptation that requires overload but a neuromuscular adaptation that requires explosive and correct movement patterns with **PERFECT TECHNIQUE**. What you are increasing is the brain’s ability to turn the machine on quicker.

### **QUICKNESS & AGILITY CONDITIONING GUIDELINES**

- a. Master the technique first then increase the speed with which you do the drill.
- b. Always maintain a ready position with knees flexed and hips low. If you have to move into the ready position before you are set to accelerate, you’ll suffer a critical delay in initiating the required movement.
- c. Perform at full speed until neuromuscular fatigue. Do not seek to induce physical fatigue. When fatigued, your explosiveness slows and technique falters-you’ll end-up practicing the incorrect movement slowly. You should rapidly complete precise movements so your neuromuscular system learns to organize high-velocity movements. Rest intervals must be long enough to that you do not begin any repetition in a prefatigued state



## The exercises listed below are general agility drills.

### Marker Agility Drills

Set the markers in a square with a distance of 30 feet between them.

#### 1. Around the Box

*To develop quick feet and directional change muscles*

- Sprint from marker 1 to the 2nd marker.
- Carioca to the right from marker 2 to 3.
- Back pedal from marker 3 to 4.
- Sprint to the left back to marker 1.
- **NOTE:** *The carioca should be done with quick, short, choppy steps.*

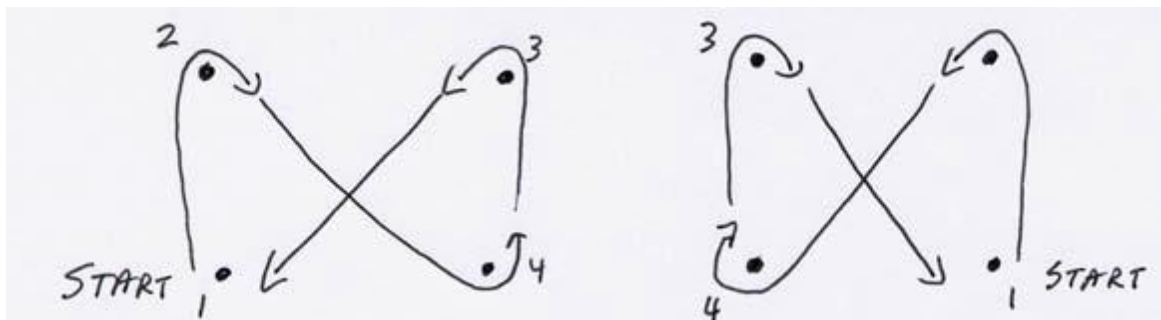


#### 2. Tight Turns

*To help develop quick feet and explosive quickness while turning*

- Start from marker 1 and sprint to the 2nd marker.
- Go around marker 2 and sprint for marker 4.
- Go around marker 4 and sprint to marker 3.
- Go around marker 3 and sprint to marker 1.

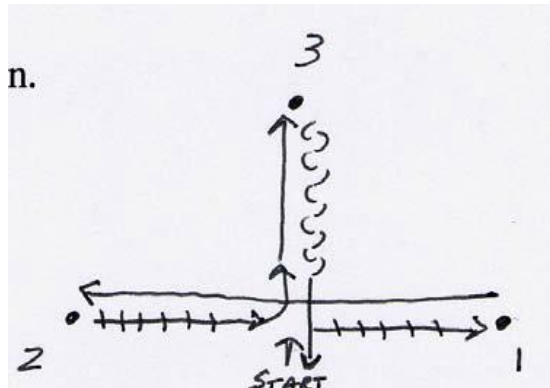
This drill can be done while stick handling a ball or puck to improve agility and puck control



### 3. Around the Triangle

*To help develop quick feet and acceleration and deceleration muscles*

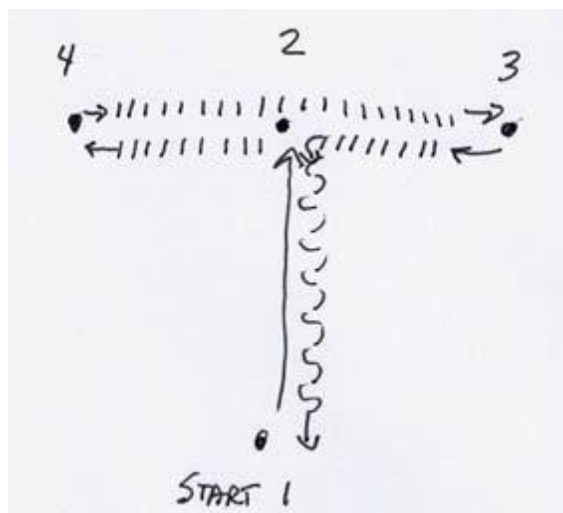
- Set up the markers in a triangle approximately 30 feet apart.
- Start at the point mid-way between marker 1 and 2.
- Carioca to the right and return to the mid-way point.
- Sprint to marker 3.
- Back pedal to starting position.
- Carioca to marker 2 and return to starting position.



### 4. “T” – Drill

*To help develop quick feet and acceleration and deceleration muscles*

- Three cones are set 5 yards apart on a straight line, a fourth one is placed 10 yards from the middle cone so that the cones form a “T”.
- Start at the cone at the base of the “T”.
- Run to the middle cone and touch it.
- Side step 5 yards to the left cone and touch it.
- Side step 10 yards to the right cone and touch it.
- Side step 5 yards to the left to the middle cone.
- Back pedal 10 yards to the cone at the base of the “T”.

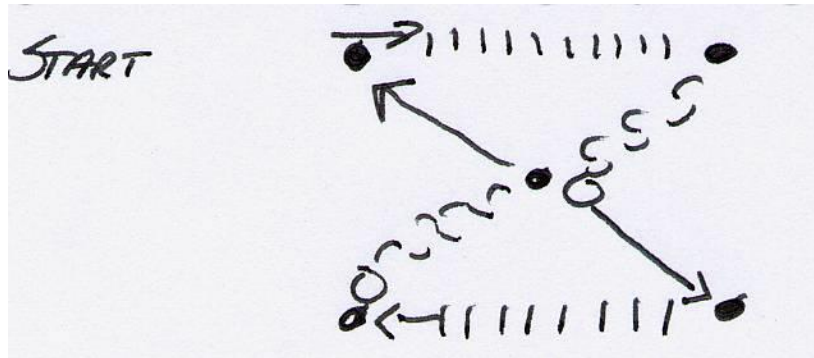


## 5. Hour Glass Drill

*To help build quick feet and directional change muscles*

- Four cones are set in a square 10 yards apart.
- Start at the top left corner of the box, crossovers to the top right corner
- Backpedal to the center of the box and pivot to forward and sprint to bottom right corner, crossovers to the bottom left corner, and backpedal to center and pivot to forward and sprint to top left corner.
- Repeat going in opposite direction.

This drill can be done while stick handling a ball to improve agility and puck control

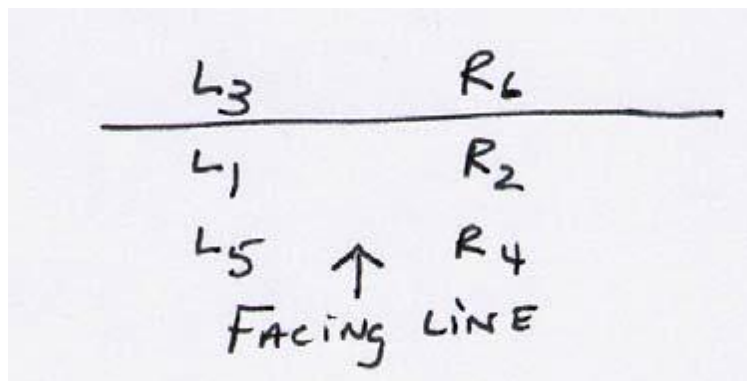


## 6. Forward Line Drills

*To help develop quick feet*

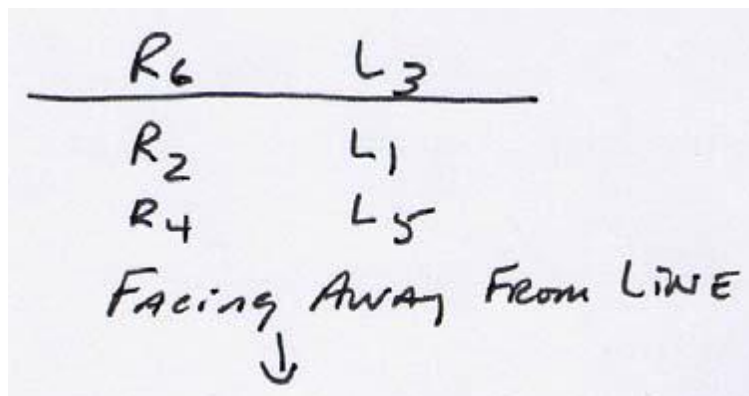
### Method A (30 SECONDS)

- Face toward a line on the floor.
- Stand ready with knees slightly flexed and your weight on the toes.
- Start by moving your left foot forward to the L1,
- Move your right foot forward to the R2,
- Move your left foot forward to the L3,
- Move your right foot backward to the R4,
- Move your left foot backward to the L5,
- Move your right foot forward to the R6 and finish with your feet shoulder width apart, with knees slightly flexed and weight on the toes.
- Complete the same pattern, but when planting L3 and R6 turn your foot in (inwardly rotate leg from hip)



### Method B (30 SECONDS)

- Face away from the line on the floor.
- Stand ready with knees slightly flexed and your weight on the toes.
- Start by moving your left foot backward to L1,
- Move your right foot backward to R2,
- Move your left foot backward to L3,
- Move your right foot forward to R4,
- Move your left foot forward to L5,
- Move your right foot backward to R6 and finish with your feet shoulder width apart, with knees slightly flexed and weight on the toes.
- Complete the same pattern, but when planting L3 and R6 turn your foot in (inwardly rotate leg from hip)



*For progression, complete while skipping.*

## 7. Lateral Line Drills

*To help develop quick feet*

### Method A (30 SECONDS)

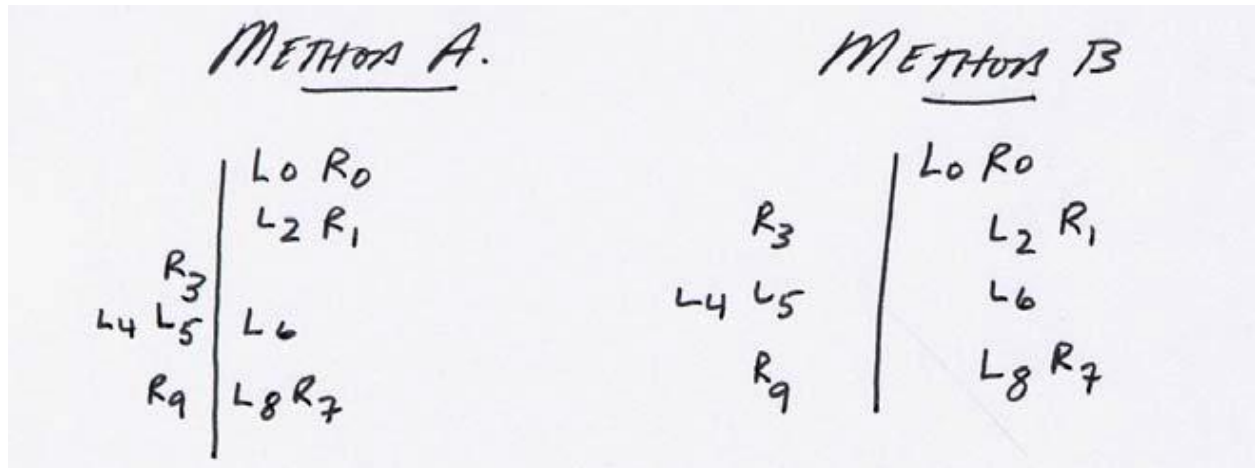
- Start standing to the right of a line on the floor, sideways to the line. (L0 and R0)
- Start with your knees slightly bent and weight on your toes.
- Jumping up, touch your right foot (R1) and your left foot (L1) to the ground.
- Cross your outside (right) foot and plant it on the other side of the line (R3),
- Next touch your left foot (L4) and then your right foot (R5), and then cross your left foot over the right and landing on the left across the line (L6),
- Touch your right foot (R7) then your left foot (L8) to the ground and cross your outside (right) foot over your left and plant it across the line (R9).
- These are continuous crossovers back and forth across the line.

- Keep your foot touches close to the line.

### Method B (30 SECONDS)

- Follow the same procedures as Method A, except move side to side as wide as possible, so you have more lateral movement.

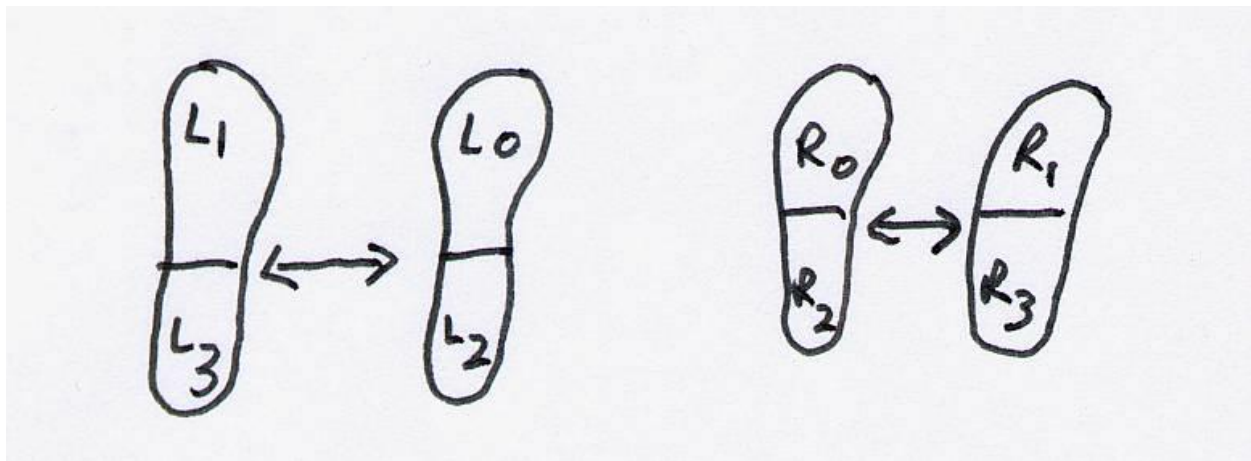




### 8. Split-Leg Shuffle

To help Build quick feet and lateral movement muscles (30 SECONDS)

- Stand upright with knees slightly bent, weight on toes, feet close together
- Pick-up both feet at the same time and land in a wider stance, feet 1.5 to 2 feet apart
- Quickly pop them back off the floor and land close together, as in the starting position
- Continue as rapidly as possible



### 9. Split-Leg 45-degree Shuffles

To develop quick feet (30 SECONDS)

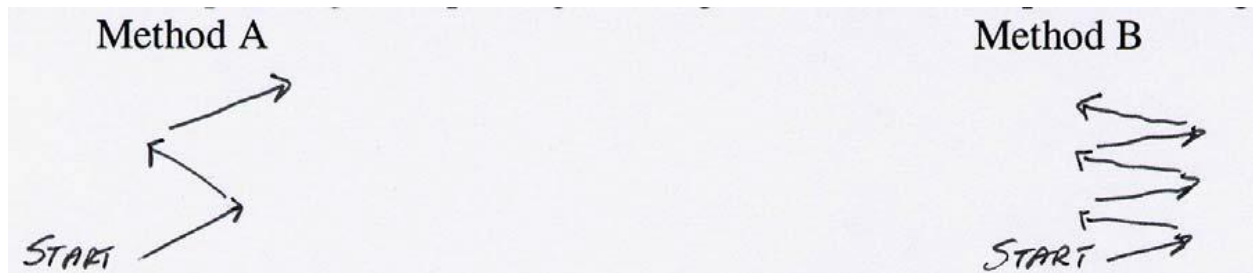
- Start in the middle of the pattern, feet close together, weight on the toes
- Pop both feet off the ground, landing left foot forward diagonally and right foot diagonally behind body
- Jump back to the starting position
- Next jump to a position with right foot forward diagonally and left foot diagonally behind body
- Jump back to starting position
- Continue as quickly as possible

## 10. Two Foot Angled Hops

*To help develop quick feet, lateral movement and directional change (10 YARDS)*

- Start with feet close together, knees bent and weight on toes
- Hop forward, jumping at an angle left and right
- Reverse direction as quickly as possible, trying to initiate movement in the opposite direction after landing each jump
- For method A, hop through with a big angle and not much horizontal distance (width), for more forward Quickness

- For method B, hop through sharper angles and greater width to emphasize changing direction.



# **Team Standards and Self-Testing**

## PROGRAM TESTING STANDARDS

The following are the exercises that are used to measure your level of conditioning as well as the team standard and the purpose of each test. Some of you will surpass the standards; keep working to improve the level of your conditioning as you cannot be too strong. For others, the standards should be looked at as goals you should strive to achieve in order to be in top physical condition.

<b>TEST</b>	<b>STANDARD</b>	<b>PURPOSE</b>
Flexibility	While standing with legs and feet together, touch the ground	To measure how tight or flexible you are indicating how prone you are to injuries.
Bench Press	175 Lbs. MAX	Measures explosive power of shoulder girdle, shoulder joint and pectorals muscles.
Squat	350 MAX	Measures leg/hip strength and power.
Push-ups	50 (without stopping)	Measures tricep, pectorals, deltoid and back muscle endurance.
Pull-ups	10	Measures deltoid, biceps and rotator cuff muscle endurance.
Sit-ups	50 per min.	Measures endurance of abdominal, hip flexors and oblique muscles.
Percent Body Fat	15% (9% is NHL average)	Determines ideal weight.
Two Mile Run	15 min	Indicator of aerobic endurance.
Long Jump	6.5 feet	Indicator of Explosive Power in the legs and hips.
Step-ups	20 reps/15 sec.	Measures foot speed
T-test	10 sec	Measures speed and directional change ability
50 Yard Shuttle	Less than 1 min.	Measures anaerobic endurance



## SELF-TESTING FORM

- The self-test is an opportunity for you to monitor your own progress.
- Perform the exercises indicated on the form and record the information in the space provided.
- Use a spotter for all of your lifts.
- Select the testing week this was completed:

☐ **Week 6**

☐ **Week 10**

☐ **Week 15**

Name: \_\_\_\_\_ Weight: \_\_\_\_\_ Date: \_\_\_\_\_

### **Flexibility:**

While standing with legs straight and feet together, can you touch your palms to the ground? (Circle one)

☐ **YES**

☐ **NO**

### **Strength:**

Bench Press Max Weight: \_\_\_\_\_

Squat Max Weight: \_\_\_\_\_

Sit-ups (Number of reps per minute) \_\_\_\_\_

Pull-ups (Max number of reps) \_\_\_\_\_

Push-ups (Max number of reps without stopping) \_\_\_\_\_

### **Foot Speed:**

Step Test (number of step-ups in 15 seconds) \_\_\_\_\_

### **Explosive Power:**

Long Jump (longest of two jumps) \_\_\_\_\_

### **Agility:**

T-Drill (Time) \_\_\_\_\_

### **Aerobic Endurance:**

2 mile run time \_\_\_\_\_

### **Anaerobic Endurance Test:**

50 Yard Shuttle \_\_\_\_\_

*NOTE: Refer to the Weight Training for Hockey section of the training manual for directions to determine your max for bench press and squats. (Use a weight that you can only do between 5 and 10 reps with and use the formula in the manual to determine your max.)*