

NATIONAL COACHING INSTITUTE

Task 2

(Strength Training)

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Introduction

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THE SPORT: BASKETBALL

Basketball is the fourth most popular participation sport in Canada. Among youth, the participation rate has increased from 13.8% in 1998 to 18.9% in 2005. It is estimated that 428,600 youth aged 15 to 19 play basketball in Canada, divided between 198,900 boys and 230,800 girls. In Ontario, almost 16,000 boys play high school basketball in addition to 14,200 girls.

DESCRIPTION

Basketball is a contact sport where two teams of five attempt to put a twenty-two ounce ball into a mesh net held ten feet above the ground. The sport requires a combination of several physical performance factors and technical skills. Successful athletes possess excellent explosive strength, speed, endurance, agility, and power, along with solid basketball fundamentals. Part of the attraction of basketball is the all-around skills required.

STRENGTH

Incredible strength is not required for the sport but it is critical that the athlete be able to quickly deploy their strength. Strength training improves the following skills: shooting a longer jumpshot, jumping higher, playing defence in the paint, blocking a shot, protecting the basketball, making crisp passes, and stealing the ball from the opponent. Emphasis is on core strength and explosive strength which closely mimic the intensity of the game.

THE ATHLETES: THE SAINTS

This task is focused on the Eastern Commerce C.I. Senior Boys Basketball Team. The Saints are elite level athletes aged 16 to 19. They are very committed to basketball: in addition to the team's daily two hour practice, the players train up to two hours. Most of the team are provincial level athletes who train year-round as part of Basketball Ontario's Centres for Performance Program. Some play for Ontario's Provincial Teams and Canada Basketball's Training Programs. Each year, two to three players receive scholarships to N.C.A.A. Division I Basketball Programs.

THE PROGRAM: EASTERN COMMERCE

Eastern Commerce C.I. has won provincial championships five times in the past eight years on the boys side and two years in a row on the girls side. It is known as the most successful basketball program in Canada and countless players have graduated to collegiate programs - many with full scholarships. Dozens have continued to play professionally across the globe. Due to the tradition, many elite athletes make great sacrifices to train and play for the team.

CHALLENGES FACING THE PROGRAM

INTRODUCTION

Basketball is a critical component of the culture at Eastern Commerce. Although the school may face less inherent challenges than the average high school program, there are still many issues that must be addressed.

UNDERSTANDING THE RESPONSABILITIES OF PLAYERS

Young people have greater responsibilities than ever before. A student-athlete must add their basketball commitment to their hefty academic and family responsibilities. Managing these off the court pressures is a critical component of coaching and keeping individual players (and the entire team) on track.

Coaches can help players facing all of these challenges by improving their personal organization skills so that they maximize their limited time. Despite all the activities, it is imperative that these teenagers get a full night's rest of at least eight hours.

FAMILY LIFE

Students at Eastern Commerce may come from a difficult home life and find school to be an escape. A parent may be absent from the home, there may be tension with a guardian, or the student may have to supervise younger siblings.

SOCIAL LIFE

The social life of a high school student in Toronto is very challenging. Relationships and past relationships can often explode and end up in the Vice-Principal's Office. Even basketball players may have lapses in judgment and coaches should discipline all players consistently.

ACADEMICS

This generation may be the first in their family to attend university or college and this fact can create undue pressure. At home, they may not have a quiet study environment to complete homework. Team Study Hall at school is another commitment that can curtail training availability.

Basketball players may have Individual Education Plans (I.E.P.) because of a Learning Disability (L.D.), Mild Intellectual Disability (M.I.D.), or other mental illness. Students who are L.D. or M.I.D. have difficulty following the training instructions and coaches must carefully supervise them. To motivate students with Attention Deficit Disorder, coaches should keep the workouts interesting and challenging. For some students, it may be better work out more frequently for a shorter length of time.

WORK

It may be necessary that the student work part-time to support their families. Some students work night shifts to help their families pay for necessities. These jobs may reduce the number of hours that an athlete can train or reduce their energy level during workouts.

COMMUTING TO SCHOOL

Some athletes commute a great distance to school from other neighbourhoods, such as Jane and Finch or Scarborough. They spend up to three hours on public transit and this affects how much they can train.

SCHOOL ISSUES

Even experienced teachers have difficulty predicting where Eastern Commerce will be in five years. Frankly, there is a good chance that it will be closed as part of a Toronto District School Board (T.D.S.B.) reorganization. Nobody knows for sure how the following issues will evolve: some may be opportunities and others threats.

FACILITIES

The facilities at the school are better than most. There are three separate gyms and a new weight room. However, the school was built in the 1920s and all of the facilities are small. Sometimes, there is not enough room in the gyms or different teams require use of the weight room at the same time. Through the Athletic Director, all coaches (both boys and girls) must communicate their schedules and compromise when required.

DECLINING ENROLLMENT

Fewer students (now 550) attend Eastern Commerce than ever before. The school is at risk of closure in the near future, although this has yet to be determined. The pool of athletes is smaller and there are fewer athletes willing to make all the sacrifices to improve on and off the court. If commitment decreases, participation in the strength training program might decline too. Instead of scheduling training sessions in addition to practices, coaches may have to reduce practice time in order to make room for workouts.

Recently, there have been several high profile incidents of violence at the school and parents are concerned about safety. The school participates in a variety of programs, including the Toronto Police School Resource Officer program and a breakfast program, to combat this image. Ian Bullock is a full-time Police Constable who works out of the school and helps out by coaching the volleyball team. The Breakfast Program is an excellent location for Team Study Hall sessions although it is not well attended and may be cancelled or curtailed next year.

DECLINING TALENT

There is less top-shelf basketball talent in downtown Toronto than previously. Many elite players now hail from the 905 area and are more likely to attend a school like Pickering H.S. instead of Eastern Commerce. Questionable characters are also guiding athletes from the G.T.A. to Prep programs in the United States, reducing talent throughout the province. Eastern Commerce does not approve of this practice and encourages players to stay in Toronto. Ninety-eight percent of basketball players who complete at least four years at Eastern Commerce graduate to post-secondary education.

If the talent level of the program continues to drop, Eastern Commerce will choose between two options. The coaches will need to devote more time training agility, speed, and power or the team will need to change how it plays the game. Instead of an athletic game based on pressure, the team might play a more deliberate and physical game. The defensive execution will remain constant but training will develop more core strength instead of quickness. Although the foundation of the model will remain - because it has proven to be successful - the details will vary based on the personnel involved.

SCHOOL CURRICULUM

Beginning in 2009-10, Eastern Commerce will become the first “Late-Start” School in Toronto. Classes will begin at 10:00am so theoretically this will provide an opportunity for more morning workouts to develop Physical Performance Factors (P.P.F.) and individual basketball skill. Since Eastern Commerce is the pilot school for this project, there is no data about how this changes a school’s athletic program but coaches are optimistic that most of the players will have more opportunities to better themselves.

Eastern Commerce has also created a Business “Special High Skills Major” program which means that the school provides a greater focus on Business courses, co-curricular activities, and skills acquired via experience. This should be a magnet for students across Toronto and will hopefully increase enrollment.

LACK OF NUTRITION

Many youths do not get breakfast before school and this can affect their energy level in class and on the court. Eastern Commerce offers a Breakfast Program but it is only three days per week. Coaches must explore other fundraising options to help players on the remaining days; this may also dovetail neatly with the “Late Start” initiative.

LIMITED HEALTH AND PHYSICAL EDUCATION

The school is semestered so some students may go a full year without a health and physical education course (H.P.E.). The H.P.E. courses emphasize participation of all students so they do not provide intense training opportunities. Consequently, the Eastern Commerce basketball coaches emphasize strength and conditioning and fitness training.

During their limited season, the Senior Girls Basketball Team meets twice daily, once for a practice and once for a dedicated fitness session, such as cross-training, yoga, or strength training. The Senior Boys Team works with a Strength and Conditioning Coach (Josh Ford of York University) to develop and maintain P.P.F.s throughout the year.

THE LIFE OF AN ELITE BASKETBALL PLAYER IN ONTARIO

Eastern Commerce is a unique place for a high school basketball player and possesses an excellent reputation. Basketball players at the school know that they are part of a special program and are usually highly motivated. Nevertheless, they are still part of the basketball culture in the province which needs drastic improvement.

TOO MANY GAMES, NOT ENOUGH PRACTICES

In addition to high school basketball, players participate in Basketball Ontario club programs, A.A.U. travelling teams, and other tournaments. The Senior Boys Basketball Team plays between thirty and forty games per year, including four or five travelling trips. A top player may play over a hundred games per year and this will compromise time for training and recovery. Coaches should be aware of a player's schedule and communicate to avoid burnout.

Since many club and travelling teams - which take place after the high school season concludes - do not usually have strength and conditioning programs, coaches should make the new fitness facilities at Eastern Commerce available, even out of season. In the fall, time should be devoted to loading endurance, strength, and power before focusing on skill and systems. In the spring, a "Training Camp" can help build P.P.F.s during a lull in the club schedule. Basketball Ontario has made strength and conditioning part of its Elite Development Program, which includes many Eastern Commerce athletes and coaches.

CONCLUSION

All things considered, there are many obstacles facing an elite high school basketball player in Toronto. When all the demands on a student-athlete are tallied up, there is hardly any time (or energy) remaining for a strength and conditioning program. But none of the obstacles mentioned above are insurmountable, especially when all the coaches and players work together.

More importantly, when coaches reflect on the season, the challenges that were overcome make the victories sweeter. Even if the team does not win a provincial championship, the season is a success because of the positive impact basketball made in the lives of the team members: athletically, academically, socially, and personally.

NORMATIVE DATA

2007-08 EASTERN COMMERCE SENIOR BOYS BASKETBALL TEAM

- These tests were performed by the 2007-08 Eastern Commerce Senior Boys Training Group

Flexed Arm Hang

- **Performance Factor:** Arm Strength Endurance
- **Starting Position:** Hanging on the chin-up bar
- Keep the chin above the bar, both feet off the ground, both hands face the same way, arm flexed at the elbow
- The athlete is helped to the starting position to reduce exertion
- The test ends when the feet touch the ground or the athlete can no longer keep their arms flexed.

<u>Score</u>	<u>Average (s)</u>	<u>Maximum (s)</u>
Entire Team	53.2	112
Future N.C.A.A. Athletes	47.0	112

Push-ups

- **Performance Factor:** Chest Strength Endurance
- **Starting Position:** Regular push-up position, elbows in
- The athlete performs as many push-ups as possible in thirty seconds

<u>Score</u>	<u>Average</u>	<u>Maximum</u>
Entire Team	27.9	45
Future N.C.A.A. Athletes	22.5	36

Sit-ups

- **Performance Factor:** Core Strength Endurance
- **Starting Position:** sit-up position
- The athlete performs as many sit-ups as possible in thirty seconds

<u>Score</u>	<u>Average</u>	<u>Maximum</u>
Entire Team	28.1	34
Future N.C.A.A. Athletes	29.5	32

Broad Jump

- **Performance Factor:** Explosive Leap (Leg Strength)
- **Starting Position:** Standing behind a line, knees bent, athletic position
- Extend both knees and swing forward to jump as far forward as possible
- The landing point closest to the line is counted (i.e. where the heels touch)

<u>Score</u>	<u>Average (m)</u>	<u>Maximum (m)</u>
Entire Team	2.53	2.97
Future N.C.A.A. Athletes	2.58	2.69

RELEVANT DATA FROM TASK 1

DIVISION OF ENERGY SYSTEMS

<u>Energy System</u>	<u>Percentage</u>	<u>Basketball Use:</u>
ATC-PC (Anaerobic Alactic)	60%	<ul style="list-style-type: none">• Jumping• Sprinting• Playing Defence
Anaerobic Lactic	20%	<ul style="list-style-type: none">• A tough halfcourt possession• A short shift during a game• A drill or competition in practice
Aerobic Base	20%	<ul style="list-style-type: none">• A longer shift during the game• An entire practice or workout

RECOVERY

ATC-PC:

The ATC-PC system can recover 50% of its base in thirty seconds (during a stoppage of play, while walking back to the head of the line in practice, between sets of a workout). The system is fully recovered in two to five minutes, the duration of half-time or a mini-lecture in practice. To fully recover during an explosive strength workout, a Work:Pause ratio of 1:5 to 1:10 is needed. During the off-season, plyometric training should occur twice per week because of the seventy two hour recovery time.

Aerobic Lactic:

The Aerobic Lactic system is used for activities lasting ten seconds to two minutes. When the ATC-PC system depletes, the Aerobic Lactic system takes over. Active Recovery, like shooting foul shots or light jogging helps disperse lactic acid.

Aerobic Base:

The Aerobic system is used for longer, less intense activities. The better the aerobic base, the longer the athlete can perform during games and practices. After games, proper rest and nutrition (complex carbohydrates) enable athletes to recover for their next challenge.

PLANNING

I always include energy systems and recovery in my practice planning. Every drill is designed to simulate a specific game situation and I always denote the Work:Pause level. Throughout the year, I include Taper and Peak periods to ensure that the team plays its best when it matters: at the end of the season. I alter the intensity and volume of each practice based on recent games and practices and the condition of the players.

The explosive strength workouts in this task should be used sparingly in-season in order to maximize performance during competition.

GOALS AND OBJECTIVES

During the 1980s and 1990s, the emphasis of marketing switched from telling consumers what they should buy (4Ps: Product, Price, Place, Promotion) to meeting their needs and wants (4Cs: Customer Needs, Costs to Satisfy, Convenience, Communication). In name and in the details, this new marketing mix is more interactive and has proven to be more successful. Since I am a marketing teacher, I have written this entire task while always keeping in mind the target audience.

On the other hand, I never want to abandon my personal standards. Part of my training philosophy is to provide an elite experience for the athletes on my teams. I want to impart as much elite knowledge to the Saints as possible, from academics, physicists, trainers, professional athletes, and master coaches.

MEETING THE NEEDS OF THE ATHLETES

First of all, I wanted to meet the specific needs of the athletes at Eastern Commerce C.I.. The school has a new weight room (opened spring 2009) but many players do not have many resources at home. To keep the training simple, many of the exercises require no equipment or a power ball. They can be performed outdoors, at a community centre, or at the school.

It is a testament to the dedication of the players and coaches that 98% of graduates progress to a post-secondary education since many have trouble focusing in the classroom. The drills are very simple and there is good variety to keep each workout interesting. Players can workout in pairs or individually.

Since many student-athletes at Eastern Commerce hold part-time jobs, the workouts do not take much time. A player could increase their strength with only half an hour of high intensity work daily.

MEETING THE NEEDS OF THE SPORT

Elite high school basketball requires amazing physical abilities. In addition to building core strength and overall strength, these exercises will develop and enhance the abilities of players to play the sport. Many N.B.A. players have adopted explosive training programs and these drills will give Eastern Commerce athletes a taste of that regiment.

MEETING THE NEEDS OF THE PROGRAM

The team has lofty aspirations and many athletes have similarly high goals. Every part of this functional training is designed towards winning the provincial championship and helping players reach the next level. S.P.A.R.Q. Training has become very popular at the high school and university level and this task was heavily inspired by that concept.

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Tasks in Detail

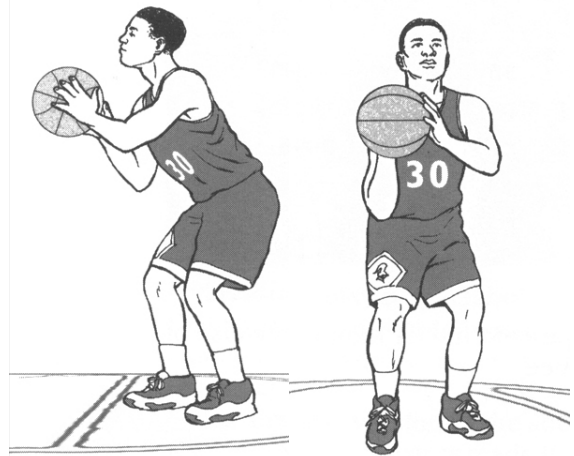
- **Shooting (Jumpshot)**, page 1
- **Rebounding**, page 5
- **Passing (Chest Pass)**, page 9
- **Dribbling**, page 13

Movements in Detail

SHOOTING (JUMPSHOT)

Starting Position:

- Ball held at chest height
 - Dominant hand behind ball
 - Non-dominant hand at the side to stabilize
- Knees bent moderately
- Body crouched slightly forward
- Balanced on the balls of the feet
- Head looking slightly upwards at the basket



Description:

- Using the dominant hand, player brings the ball from the centre of the body to above the head
- Non-dominant hand keeps the ball centered (on the sagittal plane) and stabilizes the motion
- The dominant arm forms a 90° angle at the elbow
- As the knees extend to initiate the vertical jump, the athlete extends the arm holding the ball
- The ball is released at the top of the jump and the athlete flicks the wrist of the dominant hand

Above

Before the movement:
Views from the coronal and sagittal planes.

Exercise Type:

Technical Exercise

Left

Exercise Movement:

Pressing

Muscle Action:

Eccentric

Afterwards: Full extension shown along the coronal plane.

Speed of Movement

High

Planes of

Movement:

- The body extends from a crouched position to a vertical position along the transverse plane
- The athlete jumps vertically



Muscle

Involvement:

Agonist:

Legs:
Quadriceps femoris

Synergist:

Knees (Vastus medialis & lateralis)

Antagonist:

Biceps femoris

Stabilizers:

Hips:

Gluteus maximus

Erector spinae

Gluteus minimus

Lateral rotator group

External oblique

Arms:

Triceps long & medial heads

Triceps lateral head

Biceps brachii

Shoulder (Deltoids)

Movements in Detail

SHOOTING (JUMPSHOT)

**Additional
Comments:****Repetitions:**

During practice, players take numerous shots, perhaps over a hundred repetitions. Individual high school workouts may include between two to three hundred reps, compared to a professional like Dell Curry who would make five hundred shots after practice.

During high school games, the number of reps varies immensely as some players may hoist up to fifteen jumpshots and others only one or two.

Speed:

Shots are always taken at “game speed” (as fast as possible while maintaining accuracy) in competitions, workouts, and practices. A professional shooter can catch and shoot in 0.42s and take a pull-up jumpshot in 0.86s (from the moment the brain issues the instruction to stop). High school shooters have not perfected their abilities and take slightly longer. When hastened by an opposing competitor, the process takes 5% less time.

Resistance:

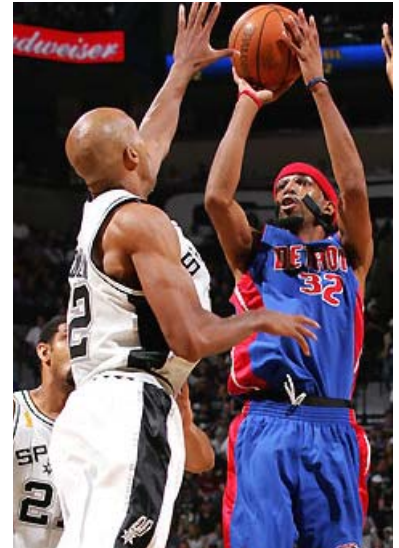
It takes about fifteen Joules to shoot a jumpshot from the foul line. When a defender is closing out, the ball is shot with a higher velocity in less time so theoretically more force is required.

Sometimes, the defender is fouling the shooter and applying force on the arms in the opposite direction, so significant more force (and energy) is required to release the ball and earn a foul.

Adaptability:

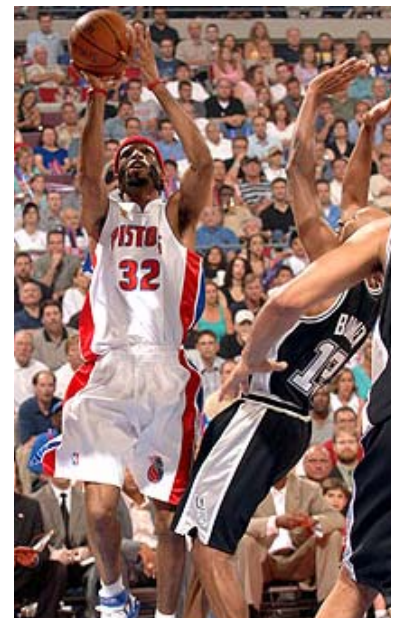
A good jump shooter must be flexible because there are so many different situations during the game. The shot may be stationary or a pull-up (the shooter must first stop momentum with a two-foot stop.)

Players may need to twist around the defence in order to release the shot. Shooters must keep their head up in order to read the situation and adjust their shot (i.e. a higher arc, more distance, a quicker release, brace for contact) as necessary.



Above: Rip Hamilton releases his shot over Bruce Bowen.

Below: Hamilton adjusts his jumpshot to avoid San Antonio defenders.



Suggested Exercises:Triceps:

Power Ball Pushups

Starting Position:

- Regular pushup position
- Place a power ball under the right-arm, which is out at a 90° angle
- Keep the elbow in on the opposite side

Exercise:

- Execute a pushup at high intensity
- At the top of the pushup, move laterally so the ball is now under the left hand
- Repeat, alternating from right hand to left.

Repetitions:

- Begin with 3x12 pushups and increase to 3x24

Safety:

- Start slowly until accustomed to the exercise

Tricep Press

Starting Position:

- Standing, feet shoulder width apart
- Hold a dumbbell or powerball behind the head
- Arms begin at a 90° angle

Exercise:

- Extend the triceps and raise the weight above the head

Repetitions:

- 3x12 repetitions
- Start with a low weight (ten pounds) and gradually increase

Safety:

- Do not bend your neck or use back and neck muscles in this exercise

Shoulders:

Hip-Hip-Shoulder-Shoulder

Starting Position:

- Close to the regular shooting position holding powerball
- Slight squat, wide stance

Exercise:

- Move the powerball to the right hip, then the left hip, then the left should, then the right shoulder

Repetitions:

- Begin with 3x30 second intervals
- Alternate between clockwise and counter-clockwise

Safety:

- Select an appropriate powerball weight (*not too heavy at first!*)

Movements in Detail

SHOOTING (JUMPSHOT)

Suggested Exercises (cont'd):

Core:

Power Ball Tornado Toss

Starting Position:

- Standing sideways, in an athletic stance
- Stand ten feet away from a cement wall
- If the wall is on the right side, hold the powerball on the left hip with two hands

Exercise:

- Spin and extend in order to throw the ball at the wall
- Pivot to face the other way in order to catch the ball
- Repeat, alternating sides

Repetitions:

- Begin with 3x12 tosses and increase to 3x24

Safety:

- Ensure the area is clear
- Perform the exercise only with sturdy cement walls

Legs:

Walking Lunges

Starting Position:

- Standing at one end of the room
- Hold a 10-12 pound dumbbell in each hand

Exercise:

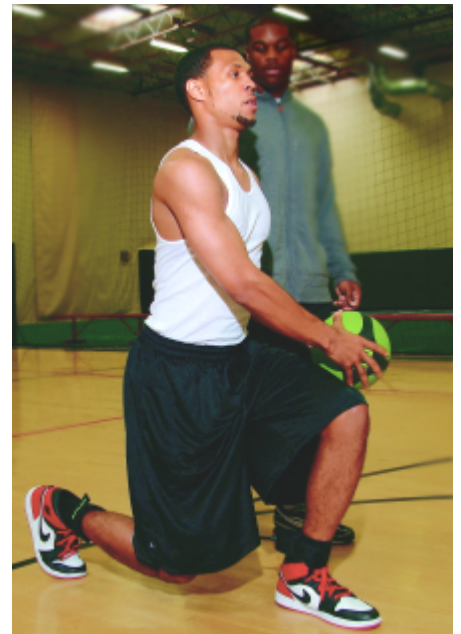
- Step forward with the right foot
- Keep the right leg at a 90° angle
- Bring the left leg close to the ground but to not rest it on the ground
- Bring the left leg forward and return to a standing position
- Pause briefly in a standing pose before repeating with the left leg
- The upper body should remain vertically erect

Repetitions:

- Begin with 3x12 lunges and increase to 3x24

Progression:

- Hold a powerball in front of you
- While in the lunge position, twist towards the stretch (towards the leg which is in front of you)



Above

N.B.A. All-Star Brandon Roy performs a Walking Lunge with a powerball

Movements in Detail

REBOUNDING

Starting Position:

- Standing position, slight squat
- Knees bent, feet shoulder width apart
- Hands above head, in a ready position
- Looking upwards towards the rim

Description:

- The athlete gathers themselves before jumping with two feet as high as possible
- Fully extend the arms and attempt to catch the ball at the height of the jump
- Bring the ball back down and protect it with the arms and body

**Exercise Type:**

Technical Exercise

Exercise Movement:

Pressing

Muscle Action:

Eccentric

Speed of Movement

High

Above**Planes of Movement:**

- The body extends from a crouch to an extended position along the transverse plane
- The athlete jumps vertically

Coronal Plane view before the rebound.

Muscle Involvement:

Agonist:

Quadriceps femoris

Erector spinae,
HamstringsTriceps long &
medial heads

Synergist:

Gluteus maximus

Triceps lateral head

Antagonist:

Hamstring

Rectus abdominis

Biceps brachii

Stabilizers:

Knees (Vastus
medialis & lateralis)

External oblique

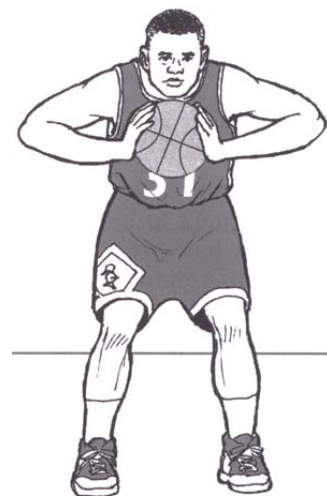
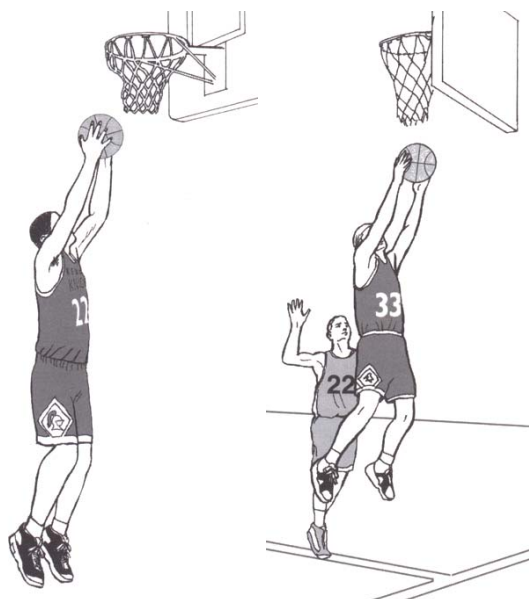
Shoulder (Deltoids)

Legs:Core:Arms:**Left**

Coronal and sagittal plane views of a rebounder extending for the ball.

Right

The sagittal plane view after the ball is secured.



**Additional
Comments:****Repetitions:**

During a game, a good rebounder might catch up to ten rebounds but they would try for many more. Counting loose balls or multiple leaps on the same play, a post player might jump explosively fifty times. Naturally - despite all best efforts of the coaching staff - rebounds in practice are not as intense. A post player may jump sixty or seventy times.

Speed:

An explosive jumper experiences about 0.7s in the air and leaves the ground at about 3.4m/s. It takes about 0.16 to gather oneself for the jump. If they were “crashing the glass”, it would take about 0.3 to stop their momentum and jump vertically.

Resistance:

An elite high school male athlete would jump about 0.60m and possess a peak power generation ability of about five thousand kilowatts. During the physical play of the game, there will be more horizontal and vertical forces from opponents which may decrease the vertical height of the jump.

After the Movement:

The rebounder must be prepared to protect the ball with two hands and pivot away from defenders. Good upper body and core strength is an asset to maintain a strong grip on the ball. Pulling the ball back in is a concentric movement using the Biceps brachii and Pectoralis major muscles as the primary movers.

**Above:**

Dwight Howard grabs a rebound at full extension.

**Left:**

Dwight Howard uses two hands to protect the rebound from Al Horford.

Suggested Exercises:Legs:

Power Ball Box Jumps

Starting Position:

- An athletic stance in front of a plyo box or bench
- Hold the power ball with two hands at chest height

Exercise:

- Jump on the box with two feet and stick the landing
- Keep the ball high and under control
- Step down

Repetitions:

- Begin with 3x5 jumps and increase to 3x10 jumps

Safety:

- Ensure the box or bench is stable
- 18" is a good starting height but customize the drill for each individual player
- Perform the Sargeant Jump Test to select an appropriate size box

Progression:

- Use ankle weights to add resistance
- Lateral box jumps can be done from the side of the box instead

Three Speed Hurdles

Starting Position:

- An athletic stance in front of three speed hurdles
- Place the hurdles about two feet apart

Exercise:

- Jump over the hurdles in sequence with two-feet
- The goal is to recover and jump again as quickly as possible
- Stick the last landing under control

Repetitions:

- 3x5 runs through the course

Progression:

- Use ankle weights or a power ball to add resistance

Entire Body:

Shoulder Press Squats

Starting Position:

- Stand feet shoulder-width apart with dumbbells at shoulder height

Exercise:

- Sit down and squat
- Explode out of squat and continue the motion by shoulder pressing the weights overhead

Repetitions:

- 3x10 squats and shoulder presses

Safety:

- At first, perform the squats and shoulder presses separately

Core:

Russian Twist Toss

Starting Position:

- Sit-up position with knees bent and heels off the ground
- Hold a power ball to the side (away from the partner) with two hands

Exercise:

- Bounce the ball off the ground
- Rip through from one side to the other, bouncing the ball at the side
- On a count of three (across-back-across), toss the ball to the partner

Repetitions:

- 3x12 tosses



Left:

Brandon Roy tosses the ball to his partner.

Sport-Specific:

Power Ball Rebounds

Starting Position:

- An athletic stance under the basket or under a concrete wall
- Hold the ball with two hands at chest height

Exercise:

- Throw the ball off the glass
- Bend knees and jump explosively
- Catch the ball above the head at full extension
- Bring the ball down to chest height

Repetitions:

- 3x12 jumps

Safety:

- Select the correct weight

Progression:

- Tip the ball off the backboard or the wall

Movements in Detail

PASSING (CHEST PASS)

Starting Position:

- Ball held at chest height with two hands
- Knees bent moderately
- Body crouched slightly forward
- Balanced on the balls of the feet
- Head up, looking at the court for passing targets and opportunities

Description:

- The player steps towards the receiver
- Most of the force is generated by pushing off the back foot
- Keeping the ball at chest height, the player pushes the ball outwards
- As the ball is released, the player rotates both wrists inwards and downwards (to apply spin on the ball)
- The player follows through towards the receiver with both arms

**Above:**

The sagittal plane view of a player holding the ball before the pass.

Exercise Type:

Technical Exercise

Exercise Movement:

Pressing

Muscle Action:

Eccentric

Speed of Movement

High

Planes of Movement:

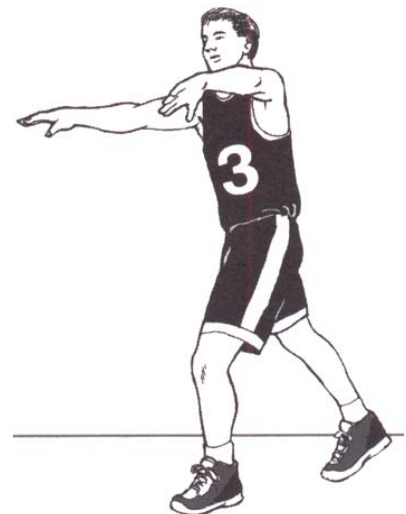
- The lower body steps forward along the sagittal plane
- The arms extend outward along the sagittal plane
- There is little vertical movement (it is poor technique to leave the ground to pass)

Below

After the pass, the player follows through along the sagittal plane. The thumbs point downwards.

Muscle Involvement:LegsChest:

Agonist:	Gastrocnemius	Pectoralis major
Synergist:	Soleus	Anterior deltoid and Triceps
Antagonist:	Tibialis anterior	Latissimus dorsi
Stabilizers:		Posterior and lateral deltoids



Movements in Detail

PASSING (CHEST PASS)

Additional Comments:**Repetitions:**

Players frequently pass the ball, much more than shooting. Each variety of pass requires a slightly different movement. Key players may execute a five to ten chest passes during a game, in addition to bounce passes, baseball passes, overhead passes, and hand-offs. In practice, players may execute over a hundred chest passes.

Speed:

The passing motion takes about half a second. The motion is quicker than shooting a jumpshot and some players make a point of snapping their wrists to accelerate the release.

During the game, pivoting (moving the feet to find open targets against defence) may take up to five seconds, which is the maximum allowed by rule.

Resistance:

The resistance is similar to a jumpshot (since the same object, a basketball is displaced) but passes are faster - thrown at up to 10 m/s - so the energy required could approach 30 J.

Adaptability:

Obviously, defenders attempt to prevent the pass or steal the ball. Articles have shown that the presence of opposing players rushes the movement and alters the technique.

Good players will mix up types of passes (chest, bounce, overhead), employ ball fakes (the full passing motion excluding the release of the ball), and pivot with their lower body to confuse the defence. Two-time M.V.P. Steve Nash is an excellent example of a point guard who sees the entire court and makes use of unorthodox techniques to get the ball to open teammates.

**Above:**

Steve Nash extends both arms as he makes a pass.

Below:

Steve Nash pivots around the defence to complete a pass.



Movements in Detail

PASSING (CHEST PASS)

Suggested Exercises:

Chest:

Squat Chest Passes

Starting Position:

- An athletic stance three feet in front of a wall
- Feet are shoulder-width apart, straddling a power ball

Exercise:

- Squat down to pick up the power ball with two hands
- Bring the ball to chest height
- Execute a chest pass (upper body only)
- Squat and place the ball on the ground

Repetitions:

- Begin with 3x10 tosses and increase to 3x20 tosses

Safety:

- Bend legs to pick up the ball, not the back

Core:

Sit-Up Tosses

Starting Position:

- On the ground, in sit-up position, with a power ball above the head
- Sit three to five feet away from the wall in order to self-pass the ball

Exercise:

- During the sit-up motion, toss the ball off the wall
- Catch the ball and lean backward

Repetitions:

- Begin with 3x12 sit-ups and increase to 3x24

Safety:

- Toss the ball as part of one fluid motion (do not sit up then toss)



Left:

Brandon Roy tosses the ball to his partner as he performs a sit-up.

Movements in Detail

PASSING (CHEST PASS)

Arms:

One-Armed Jacks

Starting Position:

- Standing, knees slightly bent, squared-up to the wall
- Hold a power ball at shoulder height in one hand

Exercise:

- Extend the arm and push the ball off the wall
- Catch the ball one handed and toss it back at the wall
- After five tosses, switch to the other hand (on the fly)

Repetitions:

- Begin with 3x10 tosses and increase to 3x20 tosses

Safety:

- Improve co-ordination before switching hands on the fly

Inverse Power Ball Push-ups

Starting Position:

- On the ground, lying on the back with knees bent
- Both hands are in a ready position
- A partner stands at the head of the player on a box or bench holding a power ball

Exercise:

- The partner drops the ball on the player's chest
- The player catches the ball and brings it into the chest
- The player executes a chest pass into the air, back to the partner

Repetitions:

- Begin with 3x10 inverse push-ups and increase to 3x20

Safety:

- Give a "ready" signal before dropping the ball
- Start with a small ball without the box before increasing the weight and the height

Legs:

Box Step-Ups

Starting Position:

- Starting behind a box or bench

Exercise:

- Step onto the box with one foot
- Bring the other knee as high as possible
- Step down
- Repeat, leading with the other leg

Repetitions:

- Begin with 3x10 and increase to 3x20 step-ups

Starting Position:

- Triple Threat Position
 - Feet shoulder width apart
 - Dominant foot slightly ahead
 - Knees slightly bent
 - Leaning forward slightly
 - Head up, seeing the court
- Hold the basketball by hip
 - Ball is on the dominant side
 - Dominant hand behind ball
 - Elbow held at 90° angle
 - Weak hand used for support

Description:

- Extend the arm and push the ball forwards and downwards
- Push off the back foot and accelerate to a full speed run
- As the ball bounces off the court, the hand is used to keep the dribble alive
 - The dribble should be low and powerful but under control
- Perform ball moves or change speed and direction as necessary
- Use the non-dribbling hand to protect the ball and keep the head up

Exercise Type: Technical Exercise

Exercise Movement: Pressing

Muscle Action: Eccentric

Speed of Movement Very High

Planes of Movement:

- The athlete runs forward along the sagittal plane
- The legs move along the transverse plane
- The arms push the basketball along the transverse plane

Muscle Involvement:

Agonist:

Gluteal maximus

Synergist:

 Erector spinae
 Gluteus minimus

Antagonist:

Lateral rotator group

Stabilizers:

External oblique

Hips:
Knees:
Ankles:

Rectus femoris

Gastrocnemius

Knees (Vastus medialis & lateralis)

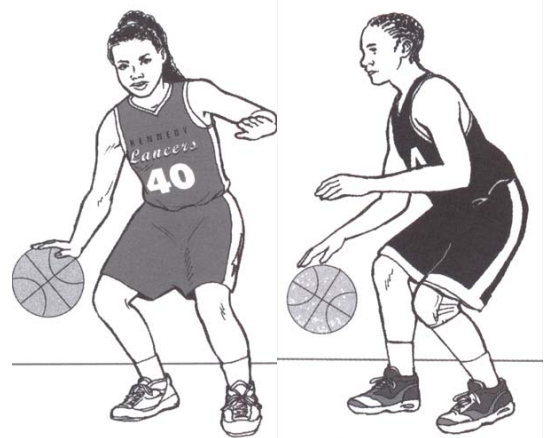
 Tibialis posterior,
 Plantaris & Peroneus

Biceps femoris

Tibialis anterior

Soleus

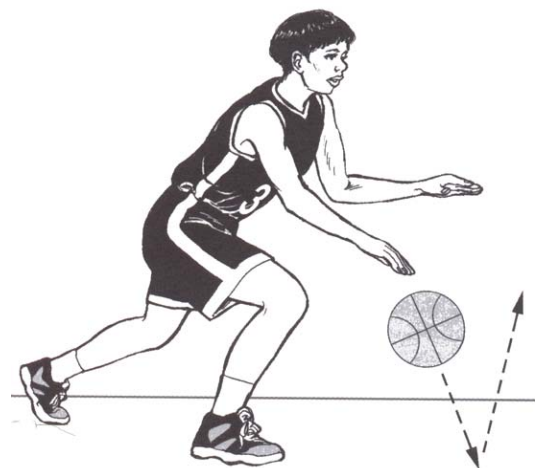
Note: pounding the ball off the court uses the arm and shoulder muscles exercised while practicing other movements.


Above:

Sagittal and coronal plane views as the dribbling motion begins.

Below:

The sagittal plane view of the dribbling motion.



**Additional
Comments:****Repetitions:**

Some positions dribble the ball more frequently than others. A guard playing for a team that moves the ball may bounce the ball two hundred times in a game, including fifty to a hundred on the fast break. A post on a more deliberate team might rarely dribble the ball.

In practice, all players should practice fundamental skills. Every player should have their own ball and each may execute over a thousand different types of dribbles. Blake Griffin, 2009 N.C.A.A. Player of the Year always performed the guards' ballhandling drills at full speed after practice at Oklahoma.

Speed:

A player at full speed can cover ten metres every dribble and make it down the length of a basketball court in about five seconds. Even though the ball is only on the ground for about 0.02 seconds, the entire dribbling motion (and several running strides) takes about a second. In the halfcourt set, dribbles slow down because of defensive pressure and tactics.

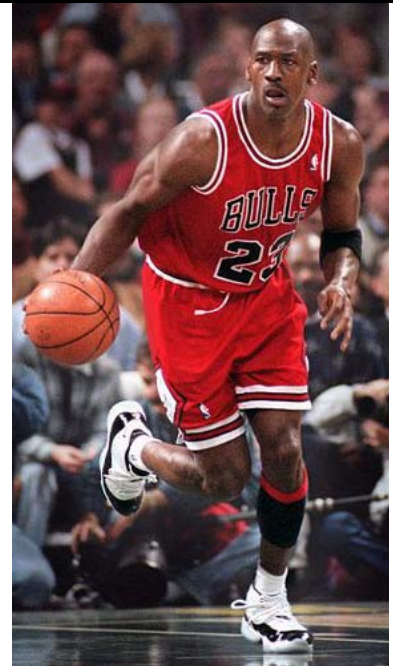
Resistance:

When a basketball is dribbled, it loses 38% of its energy each bounce, due to friction with the court, heat transfer, and air resistance. Simply dropping the ball in order to let gravity do its job is not sufficient to successfully dribble. The ballhandler must put that energy back into the ball each bounce in addition to pushing the ball forward as they run. Each bounce could assume more than thirty Joules of energy.

Adaptability:

As with passing, keeping the head up and surveying the court is paramount. Opportunities appear for a moment and vanish so skilled ballhandlers are required to get the ball into a scoring situation at a moment's notice.

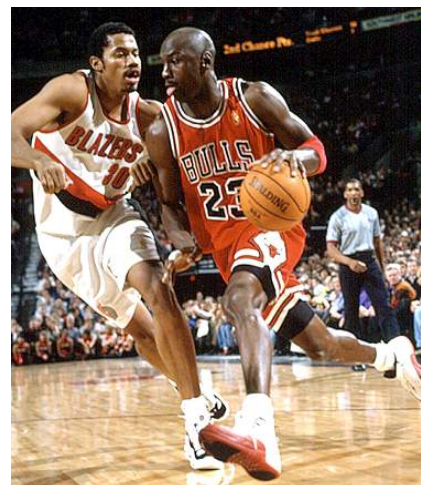
Crossing over from one hand to another to avoid the defence, posting up on the block, creating room for a shot, picking the dribble up in order to pass, pushing the ball on the fast break, and accelerating in order to turn the corner after a ballscreen are all highly technical skills that an elite player will acquire.

**Above:**

Michael Jordan keeps his head up as he accelerates and starts the fast break.

Below:

Michael Jordan adopts a lower centre of gravity as he explodes and turns the corner against the defence.



Suggested Exercises:

Legs:

Bounding

Starting Position:

- A standing position on the baseline

Exercise:

- Push off explosively off the right foot and drive the left knee up and out
- After landing, push off the left foot and drive the right knee up and out

Repetitions:

- 4-6 lengths of the basketball court

Safety:

- Warm-up thoroughly ahead of time

Explosive Split Squats

Starting Position:

- A standing position with one foot slightly in front and the other slightly behind

Exercise:

- Execute a squat, keeping the upper body stable
- Jump explosively and switch position of feet in the air (land in opposite position)

Repetitions:

- Start with 3x12 (six squats on each leg)

Safety:

- Practice with split squats at regular speed first
- Lower impact by performing the exercise on a mat



Left:

Brandon Roy readies himself to leap after performing a split squat.

Prison Push-Ups

Starting Position:

- Push-up position
- The entire exercise is designed to be performed in with limited space

Exercise:

- The sequence includes:
 - one push-up
 - two push-ups bringing a knee into the chest (one push-up for each leg)
 - a burpee (push-up, stand up, leap with both hands in the air)
 - the plank for fifteen seconds

Repetitions:

- Start with ten and increase to fifteen or twenty per workout

Safety:

- Increase the duration of the plank gradually

Arms:

Triple Threat Quick Slam

Starting Position:

- Hold the power ball in the Triple Threat Position
- Stand two feet in front of a wall

Exercise:

- Lower body remains stationary
- Use shoulders to underhand throw the ball off the wall
- Catch the ball with two hands and return to the Triple Threat Position

Repetitions:

- 3x10 tosses and catches

Safety:

- Begin by dribbling a regular basketball to become accustomed to the movement

Dribbling with a Powerball

Starting Position:

- A standing position

Exercise:

- Lunge forward with the right foot
- While holding the lunge position and keeping the upper body stable, dribble the ball with each hand
- Repeat by lunging forward with the left foot

Repetitions:

- Start with 3x20 bounces (five on each side) and increase to 6x40 bounces

3

Training in Detail

- Overview, page 1
- General Preparation Phase, page 2
- Specific Preparation Phase, page 5
- Pre-Competition Phase, page 7

SUMMARY

Within the Yearly Planning Instrument, there is a lot of day-to-day planning. The “**Energy Systems Breakdown**” listed on the following pages is only a guideline and the idea was to tie into Task 1 while outlining the training regiment for Task 2. Based on the needs of the team members, daily practices and weekly plans may be altered.

GENERAL PREPARATION PHASE

Dates: Aug. 17, 24, 31, and Sep. 7

Number of Weeks: 4

Strength Training

- **Develop:** Strength
- **Emphasize:** Sport-Specific Plyometrics
- **Maintain:** n/a
- **Introduce:** Explosive Strength

Other Performance Factors

- Develop Anaerobic Lactic and Aerobic energy systems
- Introduce Flexibility

Sport-Specific Information

- Select team
- Introduce Transition sets, Part-Method situations

SPECIFIC PREPARATION PHASE

Dates: Sep. 14, 21, 28, and Oct. 5

Number of Weeks: 4

Strength Training

- **Develop:** Explosive Strength
- **Emphasize:** Sport-Specific Movements
- **Maintain:** Strength
- **Introduce:** Testing

Other Performance Factors

- Develop Agility
- Maintain energy systems

Sport-Specific Information

- Emphasize more Part-Method and Full-Method situations

PRE-COMPETITION PHASE

Dates: Oct. 12, 19, 26, and Nov. 2

Number of Weeks: 4

Strength Training

- **Develop:** n/a
- **Emphasize:** Explosiveness in Game Situations
- **Maintain:** Strength, Explosive Strength
- **Introduce:** n/a

Other Performance Factors

- Maintain energy systems

Sport-Specific Information

- Introduce advanced technical skills
- Emphasize Full-Method systems

MONDAY**STRENGTH TRAINING**

Core Strength Circuit (I):

3 circuits x 3 exercises x 15-20 reps (rest: 30 seconds between sets)

- Russian Twists
- Plank (15 seconds each circuit for front, right side, and)
- Wood Chopper with Power Ball

Plyometrics (I):

3 sets x 8-10 reps (rest: 2-3 minutes between sets)

- Legs:
 - Power Ball Box Jumps
 - Three Speed Hurdles
 - Box Step-Ups
- Chest:
 - Inverse Power Ball Push-Ups
- Arms:
 - Triple Threat Quick Slams
 - Tricep Press
- Shoulders:
 - Shoulder Press Squats
- Sport-Specific:
- Big Step Power Ball Slams

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes plyometric workout

Anaerobic Lactic:

- 10 minutes 3-on-2-continuous/17s
- 10 minutes cone agility drills
- 10 minutes core training
- 25 minute individual ballhandling drills
- 25 minute competitive shooting drills

Aerobic:

- 10 minutes warm-up footwork/skipping
- 10 minutes transition ballhandling drills

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 45 minute team plyometric workout
- 75 minute team practice (footwork, transition, agility, shooting)

TUESDAY**STRENGTH TRAINING**

Core Strength Circuit (II):

3 x 3 x 15-20 (rest: 30 seconds)

- Superman Stretches/Knee to Chest Lifts
- Power Ball Tornado Tosses
- V-Ups

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 30 minute team aerobic workout
- 90 minute team practice (footwork, post moves, screen and roll)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minute quickness workout
- 12 minute shooting circuit

Anaerobic Lactic:

- 10 minutes Perfection 6/17s
- 10 minutes Eastern Ladder
- 10 minutes core training
- 25 minutes 2-on-2 ballscreens
- 25 minutes individual post moves

Aerobic:

- 10 minutes warm-up footwork/skipping
- 30 minutes team workout

Active Recovery:

- 20 minutes free throw shooting
- 10 minutes flexibility afterwards

WEDNESDAY

STRENGTH TRAINING

Core Strength Circuit (III):

3 x 3 x 15-20 (rest: 30 seconds)

- Sit-Up Tosses
- Squat Chest Passes
- Bicycle Sit-Ups

Resistance Training (I):

3 x 10 x (60-75% of Relative Max)

- Chest:
 - Bench Press
 - Cable Cross Over
 - Pectoral Fly
 - Bent-Over Row
- Arms:
 - Bicep Curl
 - Tricep Lift
 - Tricep Pull-Down
 - Overhead Skull-Crusher

TRAINING SCHEDULE

Lunch:

- 45 minute team workout

THURSDAY

STRENGTH TRAINING

Core Strength Circuit (I):

3 x 3 x 15-20 (rest: 30 seconds)

Plyometrics (II):

3 sets x 12 reps (rest: 2-3 minutes)

- Legs:
 - Bounding
 - Explosive Split Squats
 - Walking Lunges
- Chest:
 - Prison Push-Ups
- Arms:
 - One-Arm Jacks
 - Power Ball Push-Ups
- Shoulders:
 - Hip-Hip-Shoulder-Shoulder
- Sport-Specific:
 - Power Ball Rebounds

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 45 minutes resistance workout
- 5 minutes quickness workout

Anaerobic Lactic:

- 10 minutes 5 Ball/17s
- 15 minutes ballhandling obstacle course
- 10 minutes core training
- 20 minutes 2-on-2 Shell drill
- 20 minute competitive shooting drills

Aerobic:

- 5 minutes skipping
- 20 minutes transition part method
- 10 minutes shell drill

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

After School:

- 90 minute team practice (footwork, transition, defence)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes plyometric workout

Anaerobic Lactic:

- 10 minutes Perfection 6/17s
- 15 minutes 1-on-1 work
- 15 minutes 3-on-3 Shell drills

Aerobic:

- 5 minutes skipping
- 10 minutes transition part method

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

TRAINING SCHEDULE

After School:

- 45 minute team plyometric workout
- 75 minute team practice (1-on1/3-on-3)

FRIDAY**STRENGTH TRAINING**

Core Strength Circuit (II):
 3 x 3 x 15-20 (rest: 30 seconds)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 30 minute team aerobic workout
- 90 minute team practice (game situations)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minutes quickness workout
- 12 minutes shooting circuit

Anaerobic Lactic:

- 10 minutes core training
- 15 minutes 3-on-2 continuous/17s
- 20 minutes end of clock situations
- 10 minutes cone agility drills
- 15 minutes competitive shooting drills

Aerobic:

- 10 minutes warm-up footwork/skipping
- 30 minutes team workout

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

SATURDAY/SUNDAY**STRENGTH TRAINING**

Core Strength Circuit (III):
 3 x 3 x 15-20 (rest: 30 seconds)

Resistance Training (II):

3 x 10 x (60-75% of Relative Max)

- Legs:
 - Box Squats
 - Leg Extension
 - Hip Flexor
 - Standing Calf Raise
- Back and Shoulders:
 - Seated Row
 - Lateral Pull-Down
 - Shoulder Presses
 - Good Morning

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 50 minutes weight training

Anaerobic Lactic:

- 10 minutes core training
- 20 minutes ballhandling
- 20 minutes shooting

Aerobic:

- 5 minutes skipping
- 5 minutes warm-up footwork sequence

Active Recovery:

- 5 minutes free throw shooting
- 5 minutes flexibility stretching afterwards

TRAINING SCHEDULE

Day 1:

- 60 minute individual/pairs weight training at Community Centre
- 60 minute individual/pairs skill workout (ballhandling and shooting)

Day 2: **OFF**

MONDAY**STRENGTH TRAINING**

Core Strength Circuit (I):
 3 x 3 x 25-35 (rest: 30 seconds)

Plyometrics (I):
 3 sets x 12 reps (rest: 2-3 minutes)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (cardio + free throws)

After School:

- 45 minute team plyometric workout
- 75 minute team practice (shooting, part-method offence and defence)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes plyometric workout

Anaerobic Lactic:

- 10 minutes 5 Ball/17s
- 10 minutes core training
- 25 minutes 5-on-5 breakdowns

Aerobic:

- 10 minutes warm-up footwork/skipping
- 25 minutes transition sequences

Active Recovery:

- 20 minutes free throw shooting
- 10 minutes flexibility afterwards

TUESDAY**STRENGTH TRAINING**

Core Strength Circuit (II):
 3 x 3 x 25-35 (rest: 30 seconds)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 30 minute team aerobic workout
- 90 minute team practice (transition, defence)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minutes quickness workout
- 12 minutes shooting circuit

Anaerobic Lactic:

- 10 minutes Perfection 6/17s
- 10 minutes agility cones
- 25 minutes competitive shooting
- 15 minutes run and jump defence

Aerobic:

- 10 minutes warm-up footwork/skipping
- 20 minutes transition ballhandling
- 30 minutes team workout

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

WEDNESDAY**STRENGTH TRAINING**

Core Strength Circuit (III):
 3 x 3 x 25-35 (rest: 30 seconds)

Resistance Training (I):
 3 x 12 x (70-80% of Relative Max)

TRAINING SCHEDULE

Lunch:

- 45 minute team workout

After School:

- 90 minute team practice (pressure)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes resistance workout

Anaerobic Lactic:

- 10 minutes 3-on-2 continuous/17s
- 10 minutes core training
- 15 minutes secondary break
- 15 minutes 1-on-1 defence

Aerobic:

- 5 minutes skipping
- 25 minutes pressure defence

Active Recovery:

- 10 minutes flexibility afterwards

THURSDAY**STRENGTH TRAINING**

Core Strength Circuit (I):
3 x 3 x 25-35 (rest: 30 seconds)

Plyometrics (II):
3 sets x 12 reps (rest: 2-3 minutes)

TRAINING SCHEDULE

After School:

- 45 minute team plyometric workout
- 75 minute team practice (zone offence)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes plyometric workout

Anaerobic Lactic:

- 10 minutes 5-Ball/17s
- 10 minutes core training

Aerobic:

- 10 minutes warm-up footwork/skipping
- 15 minutes Hi/Lo
- 20 minutes zone offence

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

FRIDAY**STRENGTH TRAINING**

Core Strength Circuit (II):
3 x 3 x 25-35 (rest: 30 seconds)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 30 minute team aerobic workout
- 90 minute team practice (M-to-M offence/defence, competitive drills)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minutes quickness workout
- 12 minutes shooting circuit

Anaerobic Lactic:

- 10 minutes core training
- 10 minutes Perfection 6/17s
- 10 minutes end of clock situations
- 20 minutes M-to-M offence

Aerobic:

- 10 minutes warm-up footwork/skipping
- 30 minutes team workout

Active Recovery:

- 15 minutes free throw shooting
- 10 minutes flexibility afterwards

SATURDAY/SUNDAY**STRENGTH TRAINING**

Core Strength Circuit (III):
3 x 3 x 25-35 (rest: 30 seconds)

Resistance Training (II):
3 x 12 x (70-80% of Relative Max)

TRAINING SCHEDULE

Day 1:

- 60 minute individual/pairs weight training at Community Centre
- 60 minute individual/pairs skill workout (ballhandling and shooting)

Day 2: **OFF**

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 50 minutes weight training

Anaerobic Lactic:

- 10 minutes core training
- 20 minutes ballhandling
- 20 minutes shooting

Aerobic:

- 5 minutes skipping
- 5 minutes warm-up footwork sequence

Active Recovery:

- 5 minutes free throw shooting
- 5 minutes flexibility stretching afterwards

MONDAY**STRENGTH TRAINING**

Core Strength Circuit (I):
4 x 3 x 25 (rest: 30 seconds)

Resistance Training (I)/(II):
3 x 6 x (80-85% of Relative Max)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (cardio + free throws)

After School:

- 105 minute team practice (passing)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 5 minute quickness workout

Anaerobic Lactic:

- 10 minutes 3-on-2 continuous/17s
- 10 minutes core training
- 10 minutes rebounding
- 20 minutes passing

Aerobic:

- 5 minutes warm-up footwork
- 15 minutes skill challenge
- 30 minutes press attack

Active Recovery:

- 20 minutes free throw shooting
- 10 minutes flexibility afterwards

TUESDAY**STRENGTH TRAINING**

Core Strength Circuit (II):
4 x 3 x 25 (rest: 30 seconds)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 105 minute team practice (part method offence)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minute quickness workout
- 12 minute shooting circuit

Anaerobic Lactic:

- 10 minutes 5-Ball /17s
- 40 minutes 3-on-3 situations

Aerobic:

- 5 minutes skipping
- 20 minutes secondary break
- 30 minutes team shooting drills

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

WEDNESDAY**STRENGTH TRAINING**

Core Strength Circuit (III):
4 x 3 x 25 (rest: 30 seconds)

Resistance Training (I)/(II):
3 x 6 x (70-80% of Relative Max)

TRAINING SCHEDULE

Lunch:

- 40 minute team workout

After School:

- 110 minute team practice (post and perimeter work)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 5 minutes quickness workout
- 30 minutes resistance workout

Anaerobic Lactic:

- 10 minutes Perfection 6/17s
- 10 minutes core training
- 15 minutes advanced ballhandling

Aerobic:

- 5 minutes warm-up footwork
- 15 minutes transition ballhandling
- 20 minutes position work

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

THURSDAY

STRENGTH TRAINING

Core Strength Circuit (I):
4 x 3 x 25 (rest: 30 seconds)

Plyometrics (I)/(II):
3 sets x 8 reps (rest: 2-3 minutes)

TRAINING SCHEDULE

Lunch:

- 45 minute team plyometric workout

After School:

- 105 minute team practice (team shooting)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 45 minutes plyometric workout

Anaerobic Lactic:

- 10 minutes 3-on-2 continuous/17s
- 10 minutes core training
- 10 minutes agility cones
- 10 minutes individual ballhandling

Aerobic:

- 5 minutes skipping
- 15 minutes transition situations
- 15 minutes team shooting

Active Recovery:

- 20 minutes free throw shooting
- 10 minutes flexibility afterwards

FRIDAY

STRENGTH TRAINING

Core Strength Circuit (II):
3 x 3 x 25-35 (rest: 30 seconds)

TRAINING SCHEDULE

Lunch:

- 45 minute individual skill workout (ballhandling and shooting)

After School:

- 75 minute team practice (game situations)

BREAKDOWN BY ENERGY SYSTEM

ATC-PC:

- 8 minutes quickness workout
- 10 minutes loose ball training
- 12 minutes shooting circuit

Anaerobic Lactic:

- 10 minutes core training
- 10 minutes 5-Ball/17s
- 10 minutes end of clock situations
- 10 minutes individual ballhandling

Aerobic:

- 5 minutes warm-up footwork
- 20 minutes 5-on-5 halfcourt situations

Active Recovery:

- 10 minutes free throw shooting
- 10 minutes flexibility afterwards

SATURDAY/SUNDAY

STRENGTH TRAINING

Core Strength Circuit (III):
4 x 3 x 20 (rest: 30 seconds)

Resistance Training (I)/(II):
3 x 6 x (80-85% of Relative Max)

TRAINING SCHEDULE

Day 1:

- 40 minute individual/pairs weight training at Community Centre
- 60 minute individual/pairs skill workout (ballhandling and shooting)

Day 2: **OFF**

BREAKDOWN BY ENERGY SYSTEM

ATC-PC: 30 minutes weight training

Anaerobic Lactic:

- 10 minutes core training
- 20 minutes ballhandling
- 20 minutes shooting

Aerobic:

- 5 minutes skipping
- 5 minute warm-up footwork sequence

Active Recovery:

- 5 minutes free throw shooting
- 5 minutes flexibility stretching afterwards

4

Injury Prevention

- Basketball Injuries, page 1
- Knee Injuries, page 2
- Ankle Injuries, page 3
- Back Injuries, page 4
- Foot and Toe Injuries, page 5

BASKETBALL INJURIES

RATE OF INJURY

Basketball is a contact sport played at high speed. It has been estimated that male high school basketball players suffer an injury rate of 0.56 injuries per season, or 16.9 injuries per thousand hours of game exposure. Professional players in the National Basketball Association suffer an injury rate of 19.3 per thousand hours of game exposure. The difference in injury rates is likely due to the dramatic increase in intensity at the professional level, where training and competition push the human body to its limits.

Among high school athletes, basketball is the source of the most injuries (by total number of injuries). Despite a practice:game ratio of 3:1, 50.3% of injuries occur during games, likely due to an increase of intensity. Fortunately, half of the injuries require less than a week of recovery and thirty percent of injuries require one to three weeks of recovery

KEY INJURIES

Many basketball movements use the lower body to generate explosive power. Two thirds of basketball injuries are to the lower body. Common injuries are: **Knee** (19.1% of all injuries, 13% of game injuries), **Ankle** (16.9% of all, 20.9% of game), **Lower Back** (9.0% of all, 7.2% of game), and **Feet and Toes** (7.9% of all, 5.0% of game).

STRENGTH TRAINING SAFETY TIPS

These strategies prevent injuries during explosive strength training:

- **Determine injury history:** Ask players about any previous problems with common basketball injuries and develop modified individual training plans.
- **Perform exercises on a mat:** A thick mat can add resistance to vertical jumping exercises and decrease impact on the joints.
- **Perform all exercises correctly:** Use a spotter to assist, stop if painful.
- **Step down after box jumps:** After a plyometric jump, players can conserve their ankle, knee, and backs by stepping down gradually from the box.
- **Add resistance gradually:** Perform the movement often with no added weights or bands before increasing resistance.
- **Stay hydrated:** Also, follow proper nutrition, especially after workouts.

BASIC CARE FOR MINOR INJURIES

Pressure, Rest, Ice, Compression, and Elevation: Ice the injury for fifteen minutes every hour. Watch for signs that the injury is more serious (*see following pages*).

INTERFERENACE EFFECT

- Strength can decline when paired with off-season aerobic training.
- This is attributed to dehydration, weight loss, and possible overtraining.
- Athletes are more prone to injuries when they return from the off-season.

KNEE INJURIES

SUMMARY

Knee injuries in training can range from muscle soreness due to overuse or a sprain or strain caused by an acute movement. More serious knee injuries include ligament tears and fractures of the bones in the joint. Teens who are still growing may experience soreness after training due to imbalances in strength and flexibility.

The Lateral Collateral Ligament (L.C.L.) and Medial Collateral Ligament (M.C.L.) provide support for lateral movement such as defensive slides and change of direction when dribbling. The Anterior Cruciate Ligament (A.C.L.) and Posterior Cruciate Ligament (P.C.L.) control knee extension when jumping.

PREVENTION

Bend the Knees when Landing: When performing a plyometric exercise, bend the knees to absorb the force on the knee ligaments.

Do Not Play Through Minor Injuries: Young athletes should not persevere during a sprain or strain. The difference between soreness and a serious injury is that soreness is dull pain over a larger area whereas a strain is sharp pain localized to one area.

CARE

Address Knee Soreness: Soreness may occur, especially early in the training program. There may be a delay between the workout and the onset of soreness. Soreness decreases as the program progresses. Wait for soreness from a prior workout to diminish before training again. If soreness occurs frequently, decrease the intensity of the workout.

Jumper's Knee: The notorious injury suffered by Vince Carter during his tenure with the Raptors is also known as patellar tendinitis and causes pain in the front of the knee. To prevent long-term injury, athletes should apply P.R.I.C.E. until pain subsides.

Knee Strains: A common injury in basketball is an A.C.L. strain from suddenly stopping or changing direction. There may be a popping sound, instability in the joint, and difficulty bearing weight on that leg. Strains to the L.C.L. (caused by a blow to the inside of the knee) or M.C.L. (caused by an opposite blow) cause a lack of side to side stability.

Knee Sprains: To care for a partial tear of one of the ligaments - which may cause pain and swelling - athletes should rest the injured knee and take anti-inflammatory medication. To determine the degree of the tear, a trainer or doctor will exert pressure to determine the stability of the joint. An M.R.I. may be ordered to diagnose the injury. For moderate injuries, the recommendation may be to strengthen the muscles surrounding the injury whereas a severe tear requires surgery and dedicated rehabilitation.

ANKLE INJURIES

SUMMARY

Ankle injuries in basketball are as a result of contact, usually with the ground after jumping. The most common type of injury is an ankle inversion after stepping or landing hard. Eversion sprains (to the outside) are far less common.

PREVENTION

Tape ankles before games and practices: Re-usable ankle braces are often worn during daily practice but they do not provide the tight, personalized support of pro-wrap and athletic tape.

Stretch the ankle: After practices, a player can perform minor exercises to stretch the joint, even at home while watching television. Players with a history of ankle injuries include stretching as part of their daily warm-up routine.

Wear properly sized shoes and tie the laces tightly: Some players with ankle problems spend a great deal of time shopping for particular shoes.

CARE

P.R.I.C.E. immediately following the injury: Most ankle injuries are strains or minor sprains that heal within a day or two.

For minor ankle sprains (no joint instability): Re-tie shoelaces tightly to prevent swelling and re-enter the game. Elevate when sitting on the bench and provide **P.R.I.C.E.** after the game. When permitting a player to return to competition, it is important to answer these questions:

- 1) How the injury happened and what was the position of the ankle?
- 2) Where did the pain occur?
- 3) Are there any deformities in shape which may indicate a fracture?
- 4) Can the player put weight on the joint?
- 5) What is the range of motion of the ankle?

For severe ankle sprains (mild to moderate instability): Cut “horseshoes” out of foam, place them on each side of joint, and cover with a wrap. This prevents the pooling of blood around injury. Crutches allow a player to avoid putting weight on the injured limb. Physiotherapy referral may accelerate recovery.

For possible ankle ligament ruptures or ankle fractures: Immobilize the joint and refer to an orthopedic specialist. The ankle may require immobilization over a prolonged period of time. Intensive physiotherapy is also likely.

BACK INJURIES

SUMMARY

The most common back injury for high school athletes during training is acute (short-term) back pain caused by a muscle strain. The injury may be caused back overtraining: lack of recovery between workouts, too much resistance, or too many repetitions.

PREVENTION

Perform Strengthening Exercises: Effective and simple isometric exercises for high school athletes include:

- *Superman Stretch*
 - Lie on the stomach
 - Lift opposite pairs of extremities (right arm/left leg, left arm/right leg)
 - Hold position for up to five seconds slowly and lower slowly
 - Perform 10-15 exercises
- *Knee to Chest Lift*
 - Lie on the back
 - Bring the knee to the chest
 - Hold for up to five seconds and repeat with the other leg
 - Perform 10-15 exercises
 - A partner can help the stretching
- *Plank*
 - Lying on the front, place elbows on the floor and balance on the toes
 - Keep body in a straight line and abdominals tight
 - Start by holding the position for fifteen seconds and increase gradually to a minute

CARE

Address Lower Back Pain: Although 45% of adults experience some form of back pain, only 5% see a doctor. Symptoms of a Grade 1 (Mild) strain include stiffness or tightness, a sudden sharp pain, swelling, and a reduced range of motion. Heat can soothe soreness and lowering the resistance level and volume of the workout for a week can help recovery.

Seek Professional Help for Moderate to Severe Back Pain: Grade 2 and 3 muscle strains may keep an athlete on the sidelines for up to twelve weeks. There is an immediate increase in pain and swelling. There may be difficulty walking. Athletes should see a sports injury specialist immediately and follow the rehabilitation routine.

Use Massage, Joint Manipulation, or Electrical Stimulation: Specialists can speed up recovery of a severe injury or help chronic injuries.

FOOT AND TOE INJURIES

SUMMARY

Because of the amount of running and jumping during basketball games, practices, and workouts, foot injuries are common. Many foot injuries start as minor soreness which becomes a more severe injury due to overtraining.

PREVENTION

Wear the Right Shoes: Many athletes unwisely choose shoes based on style. Wearing the proper size and type of shoe (and using insoles if necessary) prevents most injuries. The first lesson that John Wooden gave his U.C.L.A. teams each year was a demonstration on how to put on shoes and socks correctly.

Prevent Athlete's Foot: Change socks frequently, air shoes out to dry, and wear shower shoes. Medication exists but an ounce of prevention is worth a pound of cure.

CARE

Bruising: Any athlete who runs a lot can suffer a bruised heel. Athletes should apply **P.R.I.C.E.**, use an insole to cushion the heel, or replace worn shoes.

Plantar Faciatis: A strain of the ligament along the arch of the foot, which has been suffered frequently by Chris Bosh and other N.B.A. players. Tenderness or pain in the area can be treated by rest or taping the foot to relieve pressure. The injury may last two to three weeks. A lump on the arch of the foot may indicate a rupture of the ligament.

Blisters: Caused by a sock or shoe rubbing repeatedly against the skin, blisters often occur as athlete's try to break in new shoes. Redness and soreness may occur on the skin at pressure points, such as the instep or heel. Taping the foot or covering it with a bandage or "blister plaster" can help mild blisters. A larger blister may need to be drained (leave the skin), cleaned, and covered with a sterilized bandage.

Achilles Tendinitis: The Achilles tendon at the back of the foot can become strained or ruptured if the calf muscle becomes tight while running or jumping. Sudden increases in the resistance of the workout can also cause strains or tears. Rest, ice, and massage are common treatments at first. Insoles can reduce the pressure on the tendon. Playing with Achilles tendinitis can turn a strain into a larger tear.

Stress Fractures: The continuous pounding of running or the high impact of jumping and landing can cause stress fractures, such as the second metatarsal bone in the big toe, the navicular bone, or the heel. Symptoms are tenderness and swelling at the point of the injury and pain that worsens during the activity. Athletes should see a doctor if a stress fracture is suspected and may need to immobilize the foot for six to eight weeks.

5

Assessing Explosiveness

- Quickness Project, page 1
- Quickness 6-Pack Daily Workout, page 5

QUICKNESS PROJECT

HOW & WHY OF MAKING TEAMS *QUICKER*

Steve Nash maintains quickness among the attributes that he aims to annually improve. Whatever his absolute quickness, he believes that he can always increase his standard relative to his peers and relative to his previous results.

DEFINITION

Speed is the velocity of the athlete along a straight line. Running the fast break, making a backdoor cut, or closing out an open shooter all suit the fast player. Quickness is the ability to change direction or speed rapidly. Both performance factors are valuable but quickness possesses more applications in basketball. To get open in transition, a player must accelerate and reach top speed swiftly. To cut towards the hoop, a player must change direction and escape the defence. Speed is undoubtedly an asset but on a relatively small basketball court (94" x 50"), it is useless without quickness.

THREE TYPES OF QUICKNESS

To improve overall quickness, divide the workout into drills that develop each type of quickness:

- **Linear Quickness**
 - Acceleration in a straight line
 - The ability to reach top speed in less time
- **Lateral Quickness**
 - Moving from side to side and changing direction
 - The ability to go sideways, stop, change direction, and get up to speed in that new direction
- **Vertical Quickness**
 - Getting up (and often down and back up again) in the least possible time
 - The ability to jump high is distinct from the ability to rapidly get in the air and one can often substitute for the other



Leandro Barbosa attributes a fair amount of his success in the N.B.A. to exceptional quickness.

BENEFITS

Excellent quickness benefits many athletes in basketball. Leandro Barbosa, T.J. Ford, Allen Iverson, and Dwight Howard are among countless quick N.B.A. players who stand out relative to their peers.

The athlete with great linear quickness reaches top speed in less time and often receives opportunities in transition. A superior first step creates lanes to the hoop on offense and helps close out and pressure shooters on defence.

The athlete with better lateral quickness moves well defensively, preventing the dribbler from turning the corner and staying out of foul trouble. Offensively, quick cuts generate open shots and back door chances.

The athlete with exceptional vertical quickness is an outstanding rebounder, especially when recovering to leap after a shot-block or rebound attempt. Getting off the ground swiftly permits a shooter to release a shot over the defender or elude arriving help.

The athlete who combines all types of quickness is dangerous with or without the ball, getting open in high percentage scoring situations. An athlete such as Scottie Pippen was able to combine quickness with his length and athleticism to become a feared defender.



Larry Bird pushes off the floor as he accelerates while dribbling up the court.

SCIENTIFIC BASIS

Isaac Newton's three laws of motion provide the scientific basis for quickness:

- 1 A body in motion will remain in motion unless acted upon by a net force
- 2 $F=ma$
- 3 To every action there is an equal and opposite reaction

F • Force

The forward explosiveness of a player's first step is a reaction to the force applied backwards by the player's foot on the court.

m • mass

When a player is heavier, force is devoted towards getting that extra weight moving. If two players are equally strong, the lighter player will reach top speed in less time.

a • acceleration

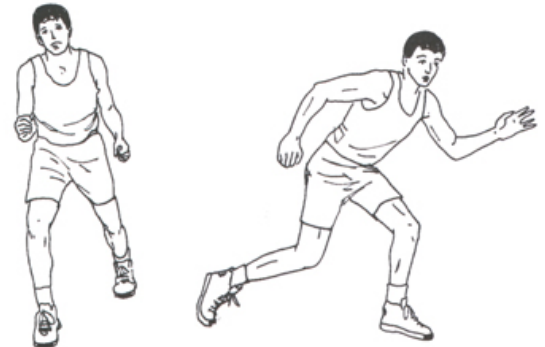
The greater the player's acceleration, the quicker they will achieve maximum speed.

It is most efficient to convert as much force into acceleration as possible. Consequently, excessive mass is disadvantageous. Basketball players should strive for a high muscle-to-mass ratio.

CHANGING DIRECTION

A strong ratio - especially among the calves, hamstrings, quads, and hip flexors - permits a player moving forward to exert a powerful sideways force on the ground. As a result, the player can change course as part of a crossover dribble, a V-cut, or a step-back jumpshot, among other moves. The defensive player can apply a lateral force to stop their momentum, drop-step, and push off in the new direction. The stronger the forces, the quicker the movement to get open or catch up to the check.

Technique remains imperative. The dribbler who can't efficiently change direction is liable to encounter a defender who has beaten them to the spot, the difference between the two proving to be the ability to stop and change course on a dime. *Plant the lead foot, pivot, and push off in the new direction.* The shortest route in the limited confines of a basketball court is a straight line.



Planting the lead foot and quickly pushing off in a new direction is integral to moving with out the ball and getting open successfully.

REACTION TIME

People need about 0.2 seconds to react to an event that occurs in front of them. Given that time, the offence has an edge because they know what will happen next, before the defence can adjust. The quick player, can take the first step towards blowing by the defence, plants and change direction, make a ball move or fake a shot-blocker. The quicker the player, the greater their lead by the time the opponent reacts.

On the other hand, the quick defender can recover in less time. Even though they start behind the offence, after they perceive what has occurred and decided what to do they can catch up to a slower opponent. Controlling a loose ball or rebound, getting a hand up and blocking a shot, or dropping down to help a teammate are all occasions when quickness permits the defence to overcome their delayed reaction.

FOUL TROUBLE

Defenders foul when they reach for the ball and miss, obstruct or hold their check, or contest the shot and contact the shooter. Quickness proves beneficial in these situations, allowing defenders to keep pace with their opponent and shut them down instead of fouling to prevent a scoring chance.

Similarly, if the offence is able to force the other team into a weak defensive position, they create the opportunity for more fouls. Linear, lateral, and vertical acceleration are all required to defend someone straight-up, within the rules. Likewise, all three types of quickness come in handy when attacking the defence and putting them on their heels.

CONCLUSION & CAVEAT

Quickness is not the be all and end all of success on the court. The attraction of basketball is the that the sport insists that participants be well-rounded athletes, possessing cardiovascular fitness, strength, agility, speed - among other performance factors - and basketball skill.

Steve Nash's improved quickness does not guarantee victory when the Phoenix Suns take the court. Having lost twice in three years to the San Antonio Spurs, the Suns have shown that when playing elite teams, quickness is merely one ingredient in a championship season -- although it is an element that Gregg Popovich and his staff must gameplan for.

PARTNER DRILLS

VOLLEYBALL	TENNIS BALL TOSSES
<ul style="list-style-type: none"> Two players stand on each block Start: Player 1 throws the ball off the glass Player 2 tips the ball (if possible -- if not, catch the ball and throw it back) The two players "pass" the ball back and forth Time: 60 seconds Advanced Drill: Use the international key 	<ul style="list-style-type: none"> Two players face each other, five feet apart Player 1 holds a tennis ball Start: 1 lightly tosses the ball to the side of Player 2 2 catches the ball with one hand and throws the ball back, forcing 1 to move sideways to catch it The two slide while tossing the ball back and forth Time: 60 seconds Advanced Drill: Vary the number of dribbles, space, or players involved

1 on 1 DRILLS

Acceleration to full speed within a small space

<ul style="list-style-type: none">• Start: Player 1 passes Player 2 the ball and closes out• 2 attacks the basket as 1 tries to force a bad shot• Keep playing until the 1 secures the ball or 2 makes a basket• 1 remains on offence until he is stopped by 2• Time: 120 seconds• Advanced Drill: Vary the number of dribbles, space, or players involved	<table><tr><th>OFFENCE</th><th>vs.</th><th>DEFENCE</th></tr><tr><td>First Step</td><td>vs.</td><td>Lateral Quickness</td></tr><tr><td>Linear Acceleration</td><td>vs.</td><td>Drop Step</td></tr><tr><td>Shot-Fake</td><td>vs.</td><td>Shot Block</td></tr><tr><td>Up & Under Move</td><td>vs.</td><td>Vertical Quickness</td></tr><tr><td>Crashing the Boards</td><td>vs.</td><td>Box Out Footwork</td></tr></table>	OFFENCE	vs.	DEFENCE	First Step	vs.	Lateral Quickness	Linear Acceleration	vs.	Drop Step	Shot-Fake	vs.	Shot Block	Up & Under Move	vs.	Vertical Quickness	Crashing the Boards	vs.	Box Out Footwork
OFFENCE	vs.	DEFENCE																	
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Shot-Fake	vs.	Shot Block																	
Up & Under Move	vs.	Vertical Quickness																	
Crashing the Boards	vs.	Box Out Footwork																	

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6-PACK

- Practice each exercise for one minute daily (6 min. total)
- Test progress once a week

Date: / /

WARM-UP & COOL-DOWN*Always warm-up and cool-down before and after workout*

Before: Cardio Suggestions: Skipping rope, stair climbing, step-ups, carioca
After: Stretching Suggestions: back, groin, hip flexors, quads, hamstrings, calves, ankles, feet

LINEAR QUICKNESS**HALFCOURT CORNERS**

- **Start** under the hoop
- Rebound the ball off the glass and dribble to the right baseline corner
- Turn around, drive back to the hoop, and finish
- Repeat for each half-court corner

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 9.9 sec.

IV 10.0-11.4s

III 11.5-12.9s

II 13.0-14.5s

I ≥ 14.6 sec.

PRACTICE: 3 sets

STEVE NASH DIAGONALS

- Place seven cones on the wings, elbows, short corners, under the basket
- **Start** on the right wing and dribble to the right short corner at full speed
- Execute a ball move and dribble to the right elbow, hoop, left elbow, etc.
- Turn around on the left wing retrace the course

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 8.9 sec.

IV 9.0-9.4s

III 9.5-9.9s

II 10.0-10.4s

I ≥ 10.5 sec.

PRACTICE: 3 sets

OTHER**SUGGESTIONS**

- Full-court dribbling
- Lunges
- Sprints
- Track & field starts
- 1-on-1 for the length of the court

LATERAL QUICKNESS**CLOSEOUT DRILL**

- Place cones outside the arc in the corners, the wings, and the top of the key
- **Start** under the hoop
- Closeout to the right corner, forcing to the baseline
- Drop-step and slide back to the hoop
- Repeat for each cone

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 9.9 sec.

IV 10.0-11.4s

III 11.5-12.9s

II 13.0-14.5s

I ≥ 14.6 sec.

PRACTICE: 3 sets

KNIFE DRILL

- Set four cones up on the wings and elbows
- **Start** at the sideline and dribble through the cones
- Dribble to the other sideline and turn back
- Execute ball moves to pass the cones in a tight space

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 5.4 sec.

IV 5.5-5.9s

III 6.0-6.4s

II 6.4-6.9s

I ≥ 7.0 sec.

PRACTICE: 5 sets

OTHER**SUGGESTIONS**

- Defensive F.W.
- Lateral lunges
- Shuttle runs
- Slalom course or Rope ladders (running, defensive footwork, or dribbling)
- 1-on-1 within limited confines

VERTICAL QUICKNESS**ADRIAN DANTLEY DRILL**

- Stand under the right side of the basket
- Hold the ball above the head with two hands
- **Start** by jumping to slam the ball off the glass
- Jump again and finish with a power lay-up
- Repeat on the other side
- Five reps on each side

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 9.9 sec.

IV 10.0-11.4s

III 11.5-12.9s

II 13.0-14.5s

I ≥ 14.6 sec.

PRACTICE: 3 sets

TIPPING

- Stand under the right side of the basket
- Hold the ball above the head with two hands
- Throw the ball off the glass to **start** the drill
- Jump and tip the ball ten times, finishing the last tip into the basket
- Repeat on the other side

Testing Times

1st . S

2nd . S

Benchmarks

V ≤ 8.9 sec.

IV 9.0-9.4s

III 9.5-9.9s

II 10.0-10.4s

I ≥ 10.5 sec.

PRACTICE: 5 sets

OTHER**SUGGESTIONS**

- Box Jumps
- Cone Jumps
- Hops
- Plyometric leaps
- Squats
- Volleyball drills with a partner against the backboard

6

Conclusion

- Key Findings of Task 2, page 1
- How My Philosophy Changed, page 2
- List of Resources, page 3

KEY FINDINGS OF TASK 2

PRIMARY STRENGTH NEEDS

Core Muscles

- **Muscles Used:** Abdominals, Lower Back
- **Uses:** transferring strength from legs to upper body, playing defence, protecting the basketball while dribbling

Legs

- **Muscles Used:** Quadriceps, Hamstrings
- **Uses:** jumping to shoot or rebound, running up the court, dribbling

Arms

- **Muscles Used:** Triceps
- **Uses:** shooting the ball, passing

BENEFITS OF STRENGTH TRAINING IN BASKETBALL

Better Performance

- Greater Explosiveness and Quickness
- Higher Jumps
- Longer Shots/Passes
- Overwhelm Defenders
 - It is difficult to knock a stronger player off the ball as they dribble
 - Players maintain more consistent motions as they shoot while defended

Injury Prevention and Recovery

- Strengthening muscles around joints reduces knee and ankle injuries
- Core strength and isometric exercise can reduce back injuries
- Accelerated recovery from minor injuries

STRENGTH TRAINING STRATEGIES FOR HIGH SCHOOL BASKETBALL

- Practice quickness and explosiveness at the beginning of each practice
- Create thirty minute resistance training workouts for individuals or pairs
 - Alternate a variety of sport-specific exercises
 - Use supplies that are inexpensive and easy to store at school or at home
- Follow Dr. Leonid Matveyev's Model of Periodization
 - Start with higher volume and lower intensity and technique early in the season during the preparatory phase
 - Finish the season with less volume and more intensity and technique
 - Include taper and peak periods to coincide with major competitions
- Don't use lack of facilities as an excuse: everything doesn't have to be perfect
- Most importantly:

Make it fun for athletes and coaches

HOW MY PHILOSOPHY CHANGED

CRITICAL ANALYSIS

The National Coaching Institute Diploma Program, its instructors, and assignments required me to look more critically at all aspects of my coaching philosophy. Instead of devoting some time to skill development, some time to strength training, and some time to explosiveness, I looked at ways to multi-task and achieve more during each moment of practice. I had become interested in S.P.A.R.Q. training and this task inspired me to create a program of sport-specific plyometrics.

LITTLE THINGS

One of my goals when I read a basketball book or attend a coaching clinic is to learn one new thing that can improve my coaching. During this task, I learnt several new things. Instead of making a change of a large magnitude, I hope to travel the same distance with a number of little steps.

CONSISTENCY

Completing the Energy Systems, Planning, and Nutrition units has made my philosophy more consistent. Every thing has a purpose or two. When I select an exercise, it is because I believe it will help the team meet its goals. Defining programs for core strength, resistance training, and plyometrics and sticking to them helps players develop and maintain their performance factors.

REMEMBERING THE TARGET MARKET

Coaches can't preach from the mount and tell players how it will be. This task initiated a thought process which reminded me that not only do I need to design specific workouts for each team of athletes but demonstrate to them how it will help them achieve their goals and give them what they want to receive from the sport.

HAVE FUN

Everyone: players, coaches, managers, and staff should relish their roles with the team and enjoy what they are doing. Strength training should be enjoyable, interesting, and challenging.

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*"I'd rather have a
young man quit in
practice than during
the fourth quarter."*

- Paul "Bear" Bryant