

Physical Training on the Off-Season for the Basketball Player

Basketball is perhaps the most demanding of all sports. It's a game of quickness: fast starts, sharp cuts and turns, acceleration and deceleration, and jumping. The heart of the game is running. It's estimated that a starting high school player will run a total of 3 to 5 miles in a 32-minute game. This running includes sprinting up and down the court on fast breaks, chasing players cross-court, breaking through picks, and scampering behind a series of screens to get a shot off.

A high school player has to be able to perform at reasonably high talent levels week after week throughout a four month season. The easiest time to prepare yourself for this is during the off-season.

During the off-season prepare yourself by putting into practice good training principles. This will help you to maintain your fitness at a high level. Therefore, you can better bring out the best in your athletic potential.

Off-season training for competitive basketball requires self- discipline, dedication, and sacrifice. Also, you must have a good working knowledge of athletic training principles. Many talented young people never reach their full potential because they don't know what to do to achieve and maximize their basketball ability.

It past years, it was generally accepted that preseason sessions were enough to condition players for the upcoming competitive season. This isn't true any more. Today, if the player doesn't come to the early practice sessions in optimum physical shape, some coaches won't allow him on the court until he gets in shape. There is a good chance that such player might be injured, dropped down a few notches on the roster, or be cut from the team.

Practice sessions are needed to fine-tune parts of your game, working on team offenses and defenses. It's not a time for getting into playing shape.

It's for this reason that the off-season is used to follow a training program to develop endurance, strength, speed, coordination, and agility. In order to be successful, all off-season training programs should include the following:

1. Warm-up 5 to 10 minutes to increase blood flow and lubricate the joints.
2. Flexibility exercises to slowly stretch muscles and tendons that cross and surround the joints.
3. Strength development to increase muscular power and force.
4. Endurance work to increase and maintain a high level of cardiovascular conditioning and interval workouts to increase speed and stamina.
5. A cool-down period of 5 to 10 minutes after the exercise has finished to let the heart rate return to normal and facilitate the return of blood from the extremities.

6. Post-exercise flexibility exercises of 5 to 10 minutes to prevent muscles from shortening.

The Warm-Up

All exercise should be preceded by a short warm-up period of 5 to 10 minutes. The purpose of this is to prepare your body for more strenuous activity to follow. An excellent warm-up is rope skipping with little or no resistance. Once your body starts to lightly perspire, you are probably sufficiently warmed up.

Rope jumping will greatly increase the flow of blood to the muscle tissues and lubricate the joints. This allows you to bend, stretch, jump, and run to the maximum of your ability without fear of injury. Exercise without a proper warm-up is very taxing to the muscles, tendons, ligaments, and joints. Failure to warm-up may lead to injury.

Flexibility: Stretching Exercises

Flexibility exercises should always follow your warm-up period. The reason for doing these exercises is to increase and improve the range of motion of the joints that you will use in basketball. By increasing your range of motion, you will decrease your chance of injury during a basketball practice or a game.

Flexibility for basketball can be achieved over a period of time by slow, passive stretching of the muscles and tendons that are used in basketball. Doing the exercises slowly is important in order to keep from injuring yourself by pushing the muscle too far and too fast.

Do not bounce as you stretch. This causes the muscle to contract automatically, preventing it from reaching its maximum length. Continuous bouncing can cause a muscle to tear.

Breathing and concentration are also important in flexibility exercises. You should concentrate on the area being stretched. Slow your breathing to help you relax that part of the body. Hold the stretch positions a minimum of 20 seconds. Perform each stretch two times per session.

The Calf

Stand a short distance from a wall. Keep your feet flat on the ground and place your forearms on the wall, your forehead leaning on the backs of your hands. Bend your left knee and bring it toward the wall. Keep the right leg straight. Begin to move your hips forward and this will start to stretch your right calf muscle. Hold this stretch 20 seconds, straighten up, then repeat with the other leg. If you want to stretch the Achilles tendon, bend slightly at the knee and repeat the same routine.

The Groin

While sitting on the floor, join the soles of your feet together and hold them with your hands. Your elbows should be leaning on the insides of your legs. Lean your upper body forward by pushing with your hips. Once you feel mild tension in your groin, hold the stretch at that point for 20 seconds; then, slowly sit up. Repeat.

The Hamstrings

Sit on the floor with legs crossed in front of you. Slowly straighten out your left leg, keeping the toes pointed straight up. Keep your right leg bent with the foot facing the inner part of your left leg. Lean forward from the hips until you begin to feel a mild form of discomfort in your hamstrings (the muscle on the back of your upper leg). Hold the stretch for 20 seconds. Repeat with the other leg.

The Back

Lie on your back with both legs flat on the ground. Raise your right leg, holding it just below the knee. Slowly bring it up toward your chest. Keep your head down on the floor and your leg as straight as possible. Hold this stretch for 20 to 30 seconds. Lower your leg and repeat the exercise five times with each leg.

The Shoulders

Pull your elbow across your chest and toward your opposite shoulder. With your opposite hand, slowly pull your elbow in the direction of the stretch. Hold for 20 seconds. Repeat with the other elbow.

Important Stretching Pointers

Stretching exercises for basketball will benefit everyone when done correctly. REMEMBER: you only have to be flexible enough to play basketball. This doesn't mean you have to stretch until you can perform a split or do a backward walkover. It's important that no grade school or high school players try for extreme flexibility. The muscle to bone structure of a younger person is in a development stage. Overstretching the joint tissues can result in long-term joint instability.

To prevent damage to yourself with stretching exercises, adhere to the following pointers:

1. Stretching shouldn't be painful; however, you should feel some mild tension or discomfort. Stop immediately once you feel sharp pain.
2. Breathe naturally as you stretch. Do not hold your breath.
3. Never bounce as you stretch. This will prevent you from properly stretching the muscle. Bouncing could lead to an injury.
4. Stretching is an individual exercise. Don't compare your flexibility to that of another teammate. Some are, by nature, more flexible than others.

Strength Development

If you develop your strength, over a long period of time by lifting weights, you will enhance your athletic skills. The core of all strength training is progressive resistance. This means that as your body becomes accustomed to one particular weight over a period of time and you can perform an exercise with little strain, more weight is added.

Free-weight training is perhaps the most popular and common form of strength training. As you exercise with free weights (barbells and dumbbells) the muscles being worked meet the same amount of resistance throughout the complete range of motion that you decide to put them through. If you are bench-pressing 200 pounds, your muscles have 200 pounds of resistance in the beginning, middle, and end of the lift.

A distinct advantage that free weights have over weight machines, the other major form of strength training, is that free weights are more versatile. For example, with dumbbells you can move through a complete muscle range. You will develop greater overall strength.

Generally speaking, guards and small forwards should be concerned with adding muscle tone (i.e., using less weight and doing more reps), while centers and power forwards should be concerned with building bulk (i.e., using more weight and doing fewer reps).

To design your own strength program, start by finding your single-lift capacity for each exercise. This is the maximum amount of weight you are able to comfortably lift one time using strictly correct lifting form. The program is derived from percentages of that single-lift capacity.

Guards and Small Forwards

1. The amount of weight to be lifted: 60 percent of your single-lift capacity.
2. The number of repetitions per set: 10. (A set is a series of repetitions.)
3. The number of sets per lift: 3.
4. Progressive weight increase: Increase poundage only when you can comfortably complete all three sets in strictly correct form.

Power Forwards and Centers

1. The amount of weight to be lifted: 70 percent of your single-lift capacity.
2. The number of repetitions per set: 8. (A set is a series of repetitions.)
3. The number of sets per lift: 3.
4. Progressive weight increase: Increase poundage only when you can comfortably complete all three sets in strictly correct form.

Weights and Children

An issue that has received a great deal of attention in regards to strength training concerns the question of when and if a child athlete should begin weight lifting. The current feeling is that weight training can be started in high school and not before. There are two reasons for this.

1. Prior to this age, young athletes don't possess the hormone level that will allow for significant gains.
2. The child is still in a growth state. This risks injury to the growth plates of the bones.

Hints to Parents and Grade School Coach

If your child is interested in strength training, the recommendation is that he do resistance exercise, using his own body weight. He can perform such exercises as push-ups, sit-ups, chin-ups, dips, and leg raises.

The High School Strength Program

The most efficient way is to work the larger muscle groups first; then, progress to the smaller groups. For example, you should not do triceps exercise prior to the bench press. The triceps get worked during the bench press is the reason. If they are fatigued, then you will be unable to load the chest muscles effectively in the bench press.

The program consists of three-day-per-week total-body conditioning for guards and small forwards. For centers and power forwards we recommend a "split program" that is followed four days a week. Both programs can be done at home with your own free- weights and a weight lifting bench.

Begin each lifting session with a 5 to 10 minute warm-up session by rope skipping. This gets your heart rate elevated and your muscles warm. You should be breathing and sweating freely. Follow this with your stretching routine to get the muscles to their maximum length.

Thereafter, go into your lifts. The body parts and exercises are listed as follows:

1. Chest decline bench
 - o bench press
 - o incline bench
2. Shoulders seated military press
 - o shoulder shrugs
 - o upright rows
3. Legs leg extensions
 - o leg curls
 - o squats
4. Back bent over rows

5. Arms curls
 - triceps extension

Make yourself some charts for use in recording the weight you lifted for each set, as well for each body part. It is important to keep records.

Consistency is the key element in the success of your weight training program. This record keeping system serves as a handy reference of your progress. With this chart you will be able to accurately note the effects of your program and make changes when needed.

Endurance Training

Endurance training is important because it provides you with sufficient fitness foundation to enable you to play a full-court game of basketball without being weakened by fatigue. As you increase your capacity by running, your cardiovascular system will be able to supply more oxygen to your working muscles with less effort than before. You will be getting in shape and will show on the basketball court.

When you are physically fit, fatigue will not hit you until late in a game. Once you do get tired, you will recover quickly with a brief rest; then, you can go back in the game and play at the same level of intensity as before.

You can run most anywhere, so there is no excuse for not running. The only piece of equipment you need is a good pair of running shoes. Well constructed running shoes will absorb the shock of three to five times your body weight. If you neglect to buy good running shoes, at some point will begin to feel pain or discomfort in your feet, knees, hips, or back.

Running and Your Heart

Running is an exercise that develops your heart muscle. An athletic heart is developed by following a regular exercise program. It is larger, heavier, beats slower, and pumps blood more efficiently than an untrained heart.

Taking your pulse as you exercise in the off-season is a good way to monitor your current physical state, as well as your level of exercise intensity. The best way to take your pulse by hand is to use your three middle fingers and press them gently on the radial artery of your wrist (located just below the thumb). Count the beats (starting at zero) for six seconds. Add a zero to the number you just counted.

Take your pulse in the morning, just before getting out of bed, and you will have your resting pulse rate. Take it immediately following exercise and you will have your training heart rate. Your heart rate is the best indicator of how hard you are exercising. Therefore, running, or any other aerobic workout, are best monitored by keeping track of your heart rate.

In theory, you should exercise in a target heart zone. This is a pulse count that ranges from 60 to 85 percent of your maximum heart rate. Your maximum heart rate is the theoretical number of beats that your heart can pump per minute.

As you exercise, your heart rate increases to keep up with your body's demand for oxygen. The harder and longer you exercise, the higher the heart rate. The formula to find your maximum heart rate, is:

Let MHR = Maximum Heart Rate

Let A = Your age

Therefore:

FOR MEN: $MHR = 220 - A$

FOR WOMEN: $MHR = 226 - A$

The number that you get from the above formulas is your current maximum heart rate. To find your target heart zone, use the following formula:

Let LRTHZ = The low range of your target Heart Zone

Let RHR = Your Resting Heart Rate

Let MHR = Your Maximum Heart Rate

Let HRTHZ = The high range of your target Heart Zone

Therefore:

Your LRTHZ = $(MHR \times .60) + RHR$

Your HRTHZ = $[(MHR - RHR) \times .80] + RHR$

Most trained basketball players will work out at 70 percent of their maximum heart rate, moving up to 80 percent or higher when they begin interval running workouts.

Intervals

One thing you should be aware of is that training at a long steady distance only lays the foundation for basketball conditioning. It is the interval training that will get you in shape to play a real fast-paced game.

Intervals help you develop your explosiveness on the basketball court and are a key in helping you reach your fullest potential as a basketball player.

An interval is a training method of alternating hard, short bursts of speed with short recovery periods of easier exercise. Intervals are important for basketball training because basketball is a fast-paced game of starts and stops.

Your energy output varies throughout the length of the game. Interval training duplicates this and helps to quickly raise your fitness to much higher levels.

If you were to limit your off-season training to a distance running at a 7 minute mile pace, you might develop the endurance needed to last an entire basketball game; however, you would never achieve the speed, strength, and power to keep up on fast breaks; and, near the end of the game where speed is still needed. It is only interval training that can dramatically increase you speed and stamina.

The last three or four weeks of the off-season is the appropriate time to add intervals to your training program. Since intervals are so taxing to the body, they should never be done two days in a row. Give your body 48 hours to recover. Also, before beginning any interval session, make sure that you are properly warmed up.

Once you begin your intervals, don't go all out on the first one. Try to target a level that you can maintain right on through the last interval of the total workout. Try to gradually increase the level of intensity of each workout.

Sample Interval Running Program

MONDAY

1. 30-meter sprints: sprint one, walk back (5 times)
2. 50-meter sprints: sprint one, walk back (5 times)
3. 30-meter sprints: sprint one, walk back (3 times)
4. 60-meter sprints: sprint one, walk back (3 times)

WEDNESDAY

1. 150-meters: sprint 50 meters, stride 50 meters, walk back (8 times)

FRIDAY

1. 30-meter sprints: sprint one, walk back (4 times)
2. 60-meter sprints: sprint one, walk back (4 times)
3. 100-meter sprints: sprint one, walk back (4 times)

* Cool down for 5 to 10 minutes after workout. The cool down should be a continuation of the last activity performed, but done at a much lower level of intensity. End with the flexibility exercises.

Prepare to be a Winner

A high level of personal motivation is critical to the success of anything that you do in life. No matter how much or how little basketball talent you have, if you are

motivated enough to follow the program set forth here, you will get in shape. Therefore, you will be better able to achieve your goals.

All the many hours that you put into your conditioning program will eventually yield results. In the final minutes of a game when your team is desperately looking for someone to score, grab a rebound, or block a shot, it is you who will come through. Why? Because you are in shape and, even in the waning minutes when everyone else is tired, you can still perform at a high competitive level. With the base built from your preseason training program, you are the one who still has the mental toughness, the strength, the power, and the motivation to get the job done.

Although you may never have all the tools to be the most talented basketball player, by working hard and following this preseason program, you will become a well conditioned athlete, able to maximize all your basketball talents. In the end this will enable you to come as close as possible to achieving your basketball dreams.