Pre-Season Training for Basketball: Preparing the athlete for the demands of the season.

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Basketball is a fast paced game. Up and down action on the court, defensive positioning down low under the basket combined with pure hustle for loose balls on the floor make the sport of basketball one of the most exciting sports to watch. For the strength and conditioning coach working with basketball players, the responsibility of designing a program that will make them better athletes for their sport is rewarding. Flexibility, conditioning, speed, quickness and agility along with strength and power are the areas of emphasis when designing the Boston University Basketball strength and conditioning program.

Training for basketball is a year long commitment. I define our training year, beginning in the summer as the off season component to the year. The training year will then go into the pre-season, which will encompass approximately six weeks of training from the beginning of the school year until the start of formal practices. The in-season takes place from the first day of practice until the last game in March. Finally, the post-season occurs from the end of the season until the end of the school semester, usually ending the first week of May. Each component to the training year carries a high level of importance. For the purposes of this article, our pre-season program will be the point of focus.

The pre-season training period commences at the start of September and will continue until the middle of October. This phase will typically last six weeks, fluctuating occasionally due to changes in the start time of the school semester and the start time of the first official practice which occurs in the middle of October.

Objectives

Prior to beginning the pre-season, it is important to list the objectives that are to be accomplished during this phase. Once the objectives have been listed, it becomes easier to outline and design a program that is specific to the task at hand.

The objectives for the pre season program are:

- Prepare the team for the practice volume
- Improve sport specific speed and conditioning.
- Improve flexibility.
- Improve core strength.
- Improve total body strength and power.

Knowing the objectives, the strength and conditioning coach can now begin the program design process. Addressing each of these objectives with a periodized approach to progression, while implementing functional exercises, will help the athletes reach the level of in-season fitness needed for the beginning of practice.

Warm-up & Stretch

Each workout will begin with a dynamic warm-up. The intent of the warm-up is to gradually increase the athlete's body temperature and increase their kinesthetic awareness. The warm-up will vary daily to help ensure that the athletes are enthusiastic about doing something new for the day. During the five scheduled sessions for the week, the team will participate in one of three warm-ups: Continuous (Table 1), Agility Ladder (Table 2), Hurdle Mobility (Table 3).

Following the warm-up routine for the day, the team will then do a stretching routine (Table 4). An important area of focus when working with basketball players is the attempt to improve overall flexibility. It is important to note that improving flexibility is a year long process not isolated to a particular cycle of the training year.

Table 1. Continuous Warm-Up 2 x 20yd ea.
High Knee Walk
High Knee Skip
High Knee Run
Butt Kicks
Straight Leg Walk
Backwards Skip
Backwards Run
Carioca
Defensive Slide

Table 2. Agility Ladder Warm-up	
In-In / Out-Out:	Fwd & Bkwd
	Left & Right
Cross-over Front:	Fwd & Bkwd
Cross-over Behind:	Fwd & Bkwd
Can-opener:	Front Leg In
	Back Leg In
Shuffle	Fwd & Bkwd
Scissors	Left & Right
Hop Scotch	Fwd & Bkwd

Table 3. Hurdle Mobility	
Forward	Right leg lead
	Left leg lead
Lateral	Right leg lead
	Left leg lead
Backward	Right leg lead
	Left leg lead

Table 4. Stretching Routine
Each movement done for 10 repetitions Or stretch is held for 10 – 15 seconds
Arm Circles Thumbs up and forward Thumbs down and backward
Standing Trunk Rotation Right and Left
Leg Swings Forward & Backward Side to side
Standing V Stretch Down to the Right, Left, & Middle
Seated V Stretch Down to the Right, Left & Middle
Seated Right Leg In (Pulling the knee to the chest)
Seated Left Leg In (Pulling the knee to the chest)
Lying Piriformis Stretch Right and Left
Lying Trunk Twist Feet flat on the floor and knees bent 90*
Butterfly Groin Stretch
Gastroc Stretch Right and Left
Standing Hip Flexor Right and Left

Conditioning

Although there will be individual workouts and pick-up games during the pre-season, there will also be three days of conditioning during the week. Conditioning will occur on Monday, Wednesday and Friday on an Airdyne Stationary Bike. Conditioning on Monday and Friday will be interval based and will be done before the strength training workout. Wednesday's workout will only be conditioning involving a longer steady state workout.

Monday and Friday's bike intervals (Table 5) will be performed using the Tabata principle. A Tabata workout consists of 20 seconds of maximum intensity exercise, followed by 10 seconds of rest, repeated without pause 8 times for a total of four minutes. Dr. Izumi Tabata and a team of researchers from the National Institute of Fitness and Sports in Tokyo, Japan conducted the groundbreaking 1996 study, published in Medicine and Science in Sports & Exercise. The Tabata bike workouts are specific to basketball. Basketball is an interval based sport with quick bursts of sprints and stops. Also, a Division I college basketball game is broken down into approximately 4 minute segments due to media timeouts. Therefore, we have built on the original Tabata principle and performed multiple 4 minute bike workouts over the course of the pre-season. In the attempt to increase the carryover effect of training from the weight room to the basketball court, each 4 minute set is separated with a 2 minute rest period, similar to the media timeout during games.

Table 5. Tabata Bike Intervals						
:20 seconds HARD / :10 seconds Rest						
2 Minutes Rest between sets	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6
Monday		1x8	2x8	3x8	4x8	Rest
Friday	1x8	2x8	2x8	3x8	4x8	Week

Wednesday's bike workout is focused on a steady state effort. Using the Airdyne bike as the mode of training, the team has to ride 7 miles and record the time in which it takes them to complete the ride. The approximate time to finish a 7 mile ride is 20 minutes. Again, being specific to the sport of basketball, one half of a collegiate basketball game is 20 minutes therefore we perform a conditioning workout that is similar in time to the game. During the pre-season, I will record the times of the players and look at their improvement over this period.

Strength Training

Strength training workouts occur 3 days per week in the pre-season on Monday, Wednesday, and Friday. During the off-season there is more emphasis on traditional total body strength; however, during the pre-season the focus of the strength training is on functional strength. Many of the exercises that we do in our program are unilateral. Single leg, single arm, and core stability exercises dominate our program during the pre-season. These exercises are specific to the demands that will be placed on the players during the season. Each player has a workout sheet individualized to their previously tested 1 repetition max (1RM). Strength testing occurs at the end of the summer in order to have a quicker transition to the pre-season. Because of the short amount of time from the beginning of the semester to the beginning of scheduled practices, being able to test the team at the end of the summer allows for an extra week of training during the pre-season because we are not spending a week for testing. Having the extra week during the pre-season allows for 6 weeks of training which will be divided into two separate phases of strength training.

Volume and Intensity

Monitoring the volume and intensity of the workouts is extremely important. Basketball players have a tendency to play a lot a basketball on their own. Whether it is in pick-up games, individual workouts, or a simple shooting practice, the volume seems to always be on the high side when looking at workouts. Although it sounds simple, volume is volume. When the volume on the court is high, the volume in the weight room must be lowered. During phase one of the pre-season program, the strength training volume is higher than the volume in phase two. On-court volume has not increased at this point. One of the objectives of phase one is to prepare the athletes for the demands of the upcoming season by progressively building up their training volume. As the team moves into phase two of training, the strength training volume decreases in conjunction to the increase of on-court volume. Making this adjustment in volume helps the athletes reduce fatigue from the weight room in order to be prepared for the upcoming practices.

Communication

Finally, in order to have a successful program, there has to be effective communication between everyone involved in the program. From the strength and conditioning coach to the athletic trainer to the coaching staff, communication is a key to the success of the program. Having a daily update with the inner circle is helpful with staying on top of any issues that may occur during the workout or at other times.

At Boston University, I am fortunate to be part of a great staff which includes the basketball coaches and sports medicine. Our staff works together in all facets of the program including basketball, strength and conditioning, and rehabilitation to make sure the team is ready for the season.