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Strength and Power Training for the Female High School Basketball Team

Designing and implementing a periodized strength and conditioning program for the female high school student-athletes poses unique challenges. Sports medicine researchers are advancing our understanding of injury patterns for this population (1, 2, 3), developing injury prevention programs supported by research (4, 5), and fine-tuning rehabilitation strategies for the post-operative patient (6, 7). It has been my observation that female high school student-athletes have, in the past, participated in less than optimal strength training programs if participating in a training program at all. Compliance with strength training programs are further challenged by factors that compete for the athletes' time such as schoolwork, part-time or fulltime employment, social engagements, and family activities. Program success may also be influenced by poor dietary habits or the presence of an eating disorder (8).

This paper will describe a sample "strength/power phase" of an off-season strength and conditioning program for a female high school basketball team. The female basketball player is at risk for both overuse and traumatic lower extremity injuries (9). The incidence of knee related injuries highlights the importance of adequately preparing these athletes for sports through a periodized program.

The Strength/Power Phase

The goals for this final stage of the off-season program are to progress the athletes' strength and power in preparation for the start of the season (10). This is performed in part by adding power and explosive exercises and utilizing exercises that mimic specificity of sports (see tables 1a and 1b) (10).

Speed and agility drills (table 3) are also initiated in this phase. The exercises in this program mimic the functional movement patterns of the basketball athlete (12, 13).

Plyometric, Speed, and Agility Training Sessions

Two days a week, training drills should be performed to enhance functional components of basketball. These drills should mimic basketball-related activities. For example, the use of rim jumps (12), another name for two-foot jumps or hops, will be performed to replicate jumping for a rebound.

Each session should begin with a short 5-minute light jog followed by a dynamic warm-up routine (13). The power moves, agility, and speed drills will be performed first, followed by the plyometric drills.

Power, Agility, and Speed Training Program

Dynamic warm-up routine (13)

Down and off (12 reps each leg), pull-through (12 reps each leg), African dance (10 to 15 yards), drum major (1 set 10 – 15 yards).

"Power moves" (13)

Squat stance medicine ball throw, hurdle step medicine ball throw, depth jump, depth jump with lateral movement, and medicine ball lift throw from a lunge stance.

Agility and speed drills (13)

Mirror drill, medicine ball mini-tennis, half-moon tubing shuttle, wave drill.

Plyometric program (12): The plyometric program described here is adopted from work designed Chu (12). The athletes should have already been exposed to these "jumps" as part of the injury prevention program (4). The appropriate level of training during this off-season phase corresponds with 100 to 150 foot contacts per session performed at a low to moderate intensity (12).

Guards: rim jumps, lateral cone hops, forward cone hops, bounding for distance

Forwards and Centers: rim jumps, depth jump followed by vertical jump, depth jump with 180-degree turn, lateral cone hops, and low post drill

Conclusion

A sample “strength/power phase” is presented here for a high school female basketball team. A successful off-season training program must also include the “hypertrophy/endurance” and the “basic strength” phases. I highly recommend that a certified strength and conditioning specialist (CSCS) be consulted to design a comprehensive training program for the team. ■

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Table 1a. Strength / Power Phase

Week	Sets	Rest Period (Minutes)	Reps	Monday "Heavy" 100% assigned training load	Wednesday "Light" 80% assigned training load	Friday "Medium" 90% assigned training load	Tuesdays and Thursdays
1	3	5	5	87% 1RM	70% 1RM and 2 mi run	80% 1RM	Plyometric drills and speed/agility circuit
2	3	5	4	89% 1RM	72% 1RM and 2 mi run	80% 1RM	Plyometric drills and speed/agility circuit
3	4	5	4	90% 1RM	70% 1RM and 2.5 mi run	85% 1RM	Plyometric drills and speed/agility circuit
4	4	5	3	92% 1RM	75% 1RM and 2.5 mi run	85% 1RM	Plyometric drills and speed/agility circuit
5	5	5	3	92% 1RM	75% 1RM and 2.75 mi run	87% 1RM	Plyometric drills and speed/agility circuit
6	5	5	3	95% 1RM	75% 1RM and 3 mi run	87% 1RM	Plyometric drills and speed/agility circuit

Table 1b. Strength / Power Exercises • Weeks 1 – 6 • Monday, Wednesday, Friday

General program for all athletes. Core exercises performed prior to assistance exercises (11)

Core	Assistance
Power clean	Crunches
Push jerk	Bicep curls
BAck squat	Triceps extensions
Bench press	Seated Rows
Lunges	