Effect of Speed, Agility, Quickness (SAQ) Training Programme on Selected Physical Fitness Variables and Performance Ability in Basketball University Players

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Abstract

Speed, agility and quickness play a important role in basketball game. Sudden and intense changes of direction, starting and stopping as well as contact among players are combined with the application of technical skills. The purpose of this study was to determine effect of SAQ training programme on selected physical fitness variables (Speed, Agility and Quickness) and performance ability of university level male Basketball players, age ranging from 19 to 25 year. For this study Twelve University player selected of the Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) was assigned in a one experimental group. All these training programme were imparted a total period of 6 weeks. The one training sessions was conducted three days a week (Morning session) of 30-45 minutes duration. The speed was measured by using 50-meter sprint run, Agility was measured by 4*10 meter shuttle run, quickness by 10-meter sprint run and performance ability of basketball players was measured by using Johnson Basketball test. The following tests items were performed in Johnson basketball test i.e, field goal speed test, throw for accuracy and speed dribble test. The data was collected before and after six weeks of SAQ training programme. The data was analyzed by applying paired T test Technique to find out the effect of S.A.Q. training programme on selected physical fitness and performance ability of basketball players. The level of significance was set at 0.05.The following conclusion was drawn i.e. SAQ training programme showed significant effect on speed (CD=0.36, $p<0.05$), agility (), quickness and performance ability of basketball players.

KEYWORD: SAQ, Physical fitness and Johnson Basketball test.

INTRODUCTION

By nature human being are competitive and ambitious for the excellence in all athletes performance. Not only every man but also every nation wants to show their supremacy by challenging the other man or nation. This challenge stimulates, inspires, and motivates the entire nation to sweat and strives to run faster, jump higher, throw farther and exhibit greater speed, strength, endurance and skills in the present competitive sports world.

This can only be possible through scientific, systematic and planned sports training as well as channelizing them into appropriate games and sports by finding out their potentialities. The game is very interesting and exciting in nature of both players and spectators. It is very strengthen and fast games. It is simple its form an art then some time it improves physical and motor fitness agility, explosive strength of feet, speed , stamina, strength of abdominal muscles and cardio vascular endurance. The importance of

developing good conditioning programs based on the specific physiological demands of each sport is considered a key factor to success (Gillam, 1985; Taylor, 2003).Basketball requires tremendous endurance, speed, agility, and power (Siegler et al., 2003). At the elite level, research has identified the intermittent high intensity exercise as predominant and fitness improvements to this activity pattern have further been defined as power endurance (Siegler et al., 2003; Trinic et al., 2001). In elite basketball games, available time motion analysis research shows that adult athletes performed per game 105 high-intensity bouts (85%maximum heart rate, HR) while covering a distance of 991m (in high-intensity) executing 50-60 changes in speed and direction and 40-60 maximal jumps(Janeira and Maia, 1998; McInnes et al., 1995). One question that remains unknown in the literature is the structure of training models and their chronic impact in players' physical fitness. In order to meet the specificity principle of training it seems that basketball-training models should be based on competition physiological determinants (Gillam, 1985; Taylor, 2003) and basketball practices should prepare players to responded equately to these requirements from the above statement. It is evident that these components of performance are essential for volleyball player's power, speed, agility, coordination, flexibility, muscular and cardio-respiratory endurance and concentration as well as quick thinking and reaction time as the factors basic to performance in volleyball. Speed, agility, and quickness (S.A.Q.) training has become a popular way to train athletes. Speed, agility, and quickness training can cover the complete spectrum of training intensity, from low to high intensity. Every individual will come into a training programme at a different level; thus, training intensity must coincide with the individual's abilities. Everyone for different applications can use low intensity speed, agility, and quickness drills. SAQ drills can also be used to teach movement, warm-up, or to condition an athlete. No significant preparation is needed to participate at this level of speed, agility, and quickness training. Higher intensity drills require a significant level of preparation. A simple approach to safe participation and increased effectiveness is to start a concurrent strength-training program when starting speed, agility, and quickness training.Gusthart, et.al. (1995) conducted a study on students learning of volleyball skills. An examination of 222 students learning volleyball skills was conducted. Analysis of data indicated that over an eight-lesson unit performance for both serve and fore arm pass improved Furthermore via fitness exercise training the improvement of Speed, Agility and Quickness (SAQ) can be achieve. This is because training are all interrelated and designated as neuromuscular training. These drills will help the athlete react quicker and will enable to control the muscle with better coordination for better performance. In addition, agility is important because it can increase the ability to move in multiple directions as require in game. The SAQ can increase athlete's agility, lateral speed, multidirectional movement and endurance. This research was investigate the effectiveness of six weeks training programme on SAQ among the UiTM rugby players. The purpose of the study was to gather scientific evidence in connection with the utility of speed, agility and quickness drills in the promotion of the skills performance of volleyball players.

OBJECTIVE OF STUDY:

The objective of study was to determine the effect of SAQ training programme on selected physical fitness variables and performance ability of university basketball players.

METHODOLOGY

Selection of the Subject:

Twelve University Basketball male players (n=12) are selected a subject of this research. All of them have an experience of playing basketball in local tournament and some of them are the national players. They came from various courses in GuruGhasidas vishwavidyalaya,(C.G). The age of these subjects was range from 19to 25 years.

Selection of Variables

Physical fitness and Skills performance in basketball is composed of numerous known and unknown factors. Therefore keeping the feasibility criterion in mind, the researcher had been selected the following variables for the present study:

A. Dependent Variable:

Selected physical fitness and skills performance ability of Basketball was considered as dependant variable for the present study.

B. Independent Variables:

1. Speed.
2. Agility.
3. Quickness.

Design of the Study

For the present study pre test – post test randomized group design which consists of one experimental group (N=12) , was used to find out effect of S.A.Q. drills training on selected physical fitness and the skills performance of basketball players. Experimental groups were exposed to training with a set of drills selected for specific purpose. The experimental groups were trained with speed, agility, and quickness drills for a period of six weeks. The training sessions were conducted three days a week i.e. (Monday, Wednesday, and Friday) at morning session. Measurement of skills performance ability was taken for group before and after the experimental period of six weeks. Each experimental session was of 30-45 minutes duration. The Detail of the training programmed is as shown in table- 1.

The procedure adopted for the adjustment of load is as follows:

1. The load intensity was kept low to moderate in first week and increased progressively in proceeding week moderate to high.
2. The frequency of training was thrice in a week.
3. The density was adjusted according to intensity because it is inversely related to intensity.
4. The repetition and sets were increased progressively from first week to proceeding week.
5. The duration of training was 30-45 min. for each experimental day.

6. The duration of warm-up were kept fixed at ten to fifteen minutes.

Criterion Measure

Following criterion measures were selected to record the data on various drill tests.

1. Speed: - To measure speed 50 meter sprint run, was administered and Time taken (nearest to 1/100 of a second. The two trails are given and best one recorded as the score.
2. Agility: - To measure agility 4*10 meter shuttle run, was administered and Time taken (nearest to 1/100 of a second. The two trails are given and best one recorded as the score.
3. Quickness: - To measure quickness10-meter sprint run, was administered and Time taken (nearest to 1/100 of a second. The two trails are given and best one recorded as the score.
4. Skills performance ability in basketball player were as assessed by Johnson Basketball test

TRAINING SCHEDULE

NEEDS	WEEK 1 DRILLS	WEEK2 DRILLS	WEEK3 DRILLS
Speed	*March walk *Form Runs	*Skips for distance *Partner-Resisted starts	*Skips for height *Form Runs
Agility	* 20-yard shuttle *Medicine-Ball wall chest passes	* Lateral 20-yard shuttle Medicine-Ball Overhead Throw	* 30-Yard T-Drill *Medicine-Ball wall scoop Toss
Quickness	*Repeated Vertical Jumps	*Standing Long Jumps	*Power skips

NEEDS	WEEK 4 DRILLS	WEEK5 DRILLS	WEEK6 DRILLS
Speed, Agility, and Quickness	* Foot- Tapping Frequency to Bounce and Catch * Hexagon Drill	* X-Pattern Multi skill *Hexagon Drill	* Z-Pattern Cuts *Drop and Get Up
Speed and Quickness	*Ladder Speed Runs *Repeated Vertical Jumps	*Hop-Scotch Drill to catch a pass * Forward Roll to Vertical Jump	*One-Leg Hop to dribble and lay-up * Sprawl and Stand Up to Vertical Jump
Agility and Quickness	*Backward Icky shuffle *Four-Point Pop-Up to 20-yard Shuttle	*Medicine-Ball Lateral Shuffle Pass *Sit-to-stand Pop-up to Z-Pattern Run	*Medicine-Ball Lateral Shuffle Pass With one partner leading *Lying-to-Stand Pop-Up to 30-yard T-Drill

DATA COLLECTION AND STATISTICAL TECHNIQUE

Descriptive statistics are utilized on selected variables. All the subject was underwent pre-test for SAQ and the data was recorded. After six week underwent the training program, subject has to perform post- test and the data were recorded. Pair sample t-test was used to determine the differences between post-test and pre-test. In addition, raw data are analyzed using statistical Package for Social Science (SPSS version 16). Alpha set at .05 for statistical significance (a< 0.05 or 95% of confidant level).

RESULT:

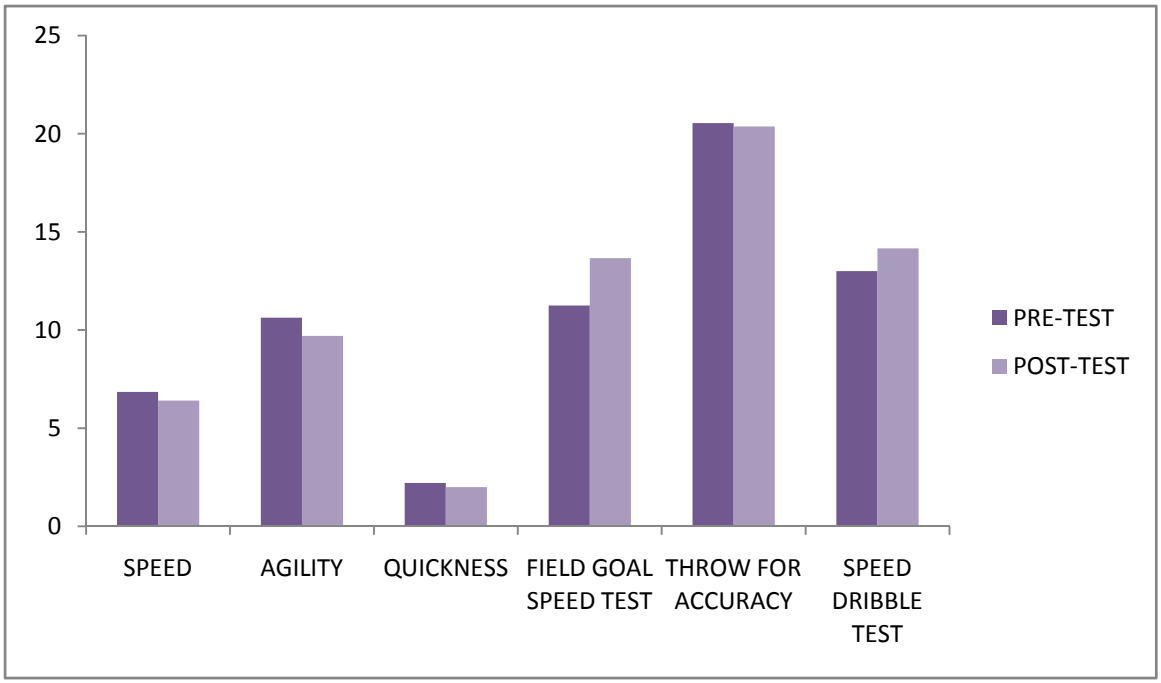
To have a feel for the data, some descriptive statistics like Mean and SD was computed for the above said variables. Baseline and post-training physical fitness and performance ability in basketball players are presented in Table-1. All of the participants completed the venture with 100% compliance, and there were no injuries resulting from either training program. After the training program, the experimental group made significant improvements on all of the tests expects throw for accuracy.

Table-1

Paired sample T test of Basketball university players in selected variables

Variables	Base line	Post-training	Gains		T value
			absolute	%	
Speed	6.85±.34	6.41±.32	-.44	-6.40	6.59*
Agility	10.63±.41	9.70±.44	-.93	-8.74	8.80*
Quickness	2.21±.17	2.00±.15	-.21	-9.50	6.16*
Field goal speed test	11.25±1.70	13.66±1.34	2.41	21.4	9.23*
Throw for accuracy	20.54±2.12	20.37±1.05	-.17	-.82	.445
Speed dribble test	13.00±1.61	14.16±1.00	1.16	8.9	4.16*

Graphical representation of selected variables (Pre-Training and Post – Training)



DISCUSSION ON FINDING

The present study started with to find out effect of SAQ training programme on selected physical fitness and performance ability on university basketball players after administration of test for collection data and appropriate statistical analysis scholar has made an attempt to present the discussion of findings. The scholar examined the effect of S.A.Q. drills training programme on selected physical fitness and skills performance ability of basketball players. The results, in general, support the theory that S.A.Q. drills improve skills performance of basketball players. After training programme result reveled significantly improvement on selected physical dimension i.e speed(t=6.59*,-6.40%),agility(t=8.80*,-8.74%),quickness(t=6.16*,-9.50%) and performance ability field goal speed test(t=-9.23*,21.4%), throw for accuracy(t=.445, .82%) and speed dribble test(t=-4.16*, 8.9%) but in throw for accuracy SAQ training found in significantly improvement. SAQ training across all individuals elements are probably attributable to the specificity of strength or speed. The specificity of exercises conducted in SAQ training program and fact that this group received drills to improvement mechanics might have resulted in the development of more functional and relevant motor programs that control the complex intramuscular coordination of associated movements like sprinting jumping etc.SAQ drills included various plyo drills. Use of plyo drills has been advocated for several years as a means of improving performance in sports activities in which lower body power player a key role in success. The present study obtained some were similar result of Faigenbaum et al. (2005). During plyometric movements, the muscles undergo a very rapid of switch from the eccentric phase to the concentric phase. This stretch shortening cycle decrease the time of the amortization phase that in turn

allows for greater them moral power production the muscles stored elastic energy and stretch reflex response are essentially exploited in this manner, permitting more work to be done by the muscle during concentric phase of movement."Positive change in experimental group may be because the recovery patterns in given exercise programme.Traditionally three workouts per week were found to be adequate for recovery. Altering rest affects period's influences metabolic hormonal and cardiovascular responses to an acute bout of exercise and each subsequent set. These results are consistent with the findings reported by Vossen, et.al. (2000) and Faigenbaum et al. (2007), who noted that the combined practice of upper body plyometrics and strength may improve upper body power performance. This is in agreement with the report of Faigenbaum et al. (2007) This finding is in agreement with the previous studies, which suggested that regular participation in a well-designed strength program will result in some degree of improvement in motor performance (Micheli & Purcell, 2007).Correctly designed and competently supervised training programs carry no extra overload on young athletes' skeletal muscles as proved by the absence of injury during the training program. In addition, none of the participants missed training practice or basketball games due to injury in the following year round cycle. We assume that both off-season conditioning programs helped to the young basketball players to have an injury-free season. As described previously (Koutures & Gregory, 2010; Myer et al., 2005).

CONCLUSIONS

Based on the findings and within the limitations of the study the following conclusions may be drawn:

1-Speed-agility-quickness training has a significant positive effect on the performance of basketball players.

2-Speed-agility-quickness training improves the selected motor fitness components-power, agility, speed and cardio-respiratory endurance (VO2max).

3-Significant improvement is possible in basketball performance of the players even without specific SAQ equipment.

4-Significant improvements are possible in selected motor fitness components of the basketball players even without specific SAQ equipment.

RECOMMENDATIONS

Researches may be conducted to ascertain whether or not, practice of speed-agility-quickness training helps to improve performance ability in other age group, sex and discipline.

1-Reviews reveled that no studies have been undertaken to determine the effect speed-agility-quickness training on the performance of basketball players, hence more extensive studies may be conducted to further explore the effect.

2-The standards of performance differ from place to place owing to environmental, social and emotional conditions, so a study may be conducted on a wider scale covering the whole country.

3-The present finding refer to particular population and subject/sample and it is very likely that the findings are applicable to all levels of basketball players, however before making any generalization, more elaborate studies be conducted to be more reliable.

4-Author of the study feels in light of the same it will be highly appreciable if speed-agility-quickness training will be included from early stage of training.

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