International Journal of Physical Education and Sports Sciences
Vol. 14, Issue No. 3, June-2019, ISSN 2231-3745

Impact of an Exercise Training Protocol On Selected Agility, Speed and Injury Prevalence among University Level Handball and Basketball Players

Mr. Vijay Kumar*

Research Scholar, Department of Physical Education Panjab University, Chandigarh

Abstract – The motivation behind the investigation was to decide the effect of an exercise training protocol on agility, speed and injury prevalence among University level men basketball and handball players. Forty (N = 40; 20 Basketball + 20 Handball) players were chosen and isolated into two groups: Experimental group (N =20; 10 Basketball + 10 Handball) and Control Group (N = 20; 10 Basketball + 10 Handball). Both the experimental and control group endured a common fitness training for 20 min for each season 3 to 5 seasons in seven days for about two months with a steady increment in number of seasons/week as the training advances. The experimental group experienced an exceptional condescended exercise training protocol notwithstanding the fitness training and control group did not experience the training protocol. The components specifically agility, speed and injury prevalence were estimated by semo agility test, 50-meter dash and injury proportion questionnaire assessment separately. The data were collected and tested from each subject when the training period and statistically investigated by utilizing analysis of covariance (ANCOVA). This examination demonstrates that there was a significant improvement in the experimental groups on chosen factors to be specific agility, speed and a significant decrease in injury prevalence because of the two months of exercise training protocol and has made a truthful endeavor to lessen the injuries of University level men basketball and handball players.

----------♦----------

INTRODUCTION

Advancement of a physically dynamic lifestyle is supported around the world, especially with respect to the numerous medical advantages. In kids and teenagers, normal sports practice encourages the development of fundamental movement skills, prevents corpulence and its long haul outcomes and has dependable advantages on bone health.4 Unfortunately, expanded power and volume of sport practice lead to a higher rate of intense and abuse injuries. For the young athlete, the results of sports injuries could be various, running from re-injury to profession finishing.

Long haul effects of sports injuries are habitually found in adulthood, for example, a quickened development of osteoarthritis. Decrease of just a moderate extent of all sports injuries is of criticalness for the young athletes' wellbeing and could have a long haul monetary effect with respect to social insurance costs.10 It is in this way imperative to persuade medical doctors, physical therapists, trainers and coaches, just as the athletes themselves, of the need to implement dynamic prevention measures into their treatment and training programs, subsequently diminishing the (re-)injury rate and upgrading athletic execution.

To be sure, later logical writing dependent on a deliberate injury prevention approach proposes that well-designed projects do have constructive outcomes, gave that various conditions are satisfied. The presentation testing of athletes has dependably been a famous undertaking. There are various components, which are in charge of the exhibition of a sportsman. To perform in any game or sports not just relies upon physiological, mental, sociological and logical training factors yet in addition requires great physical make-up, body sythesis, endurance, flexibility and great reaction to some random circumstance.

Physical fitness as a solitary factor is the most significant for superior in sports. Physical fitness testing gives a decent standard and reference for coaches, sports researchers, physiotherapists just as future researchers1. Current assessment in physical fitness centers around parts of wellbeing related physical fitness, which incorporates cardiovascular

(oxygen consuming) fitness, body structure, solid strength and endurance and flexibility.

Explicitness of testing is required when execution is to be evaluated3. Sport explicit assessments are valuable in giving data concerning an athlete's capacity to take part in sports and extra data can be picked up on potential approaches to improve execution and prevent injuries. Assessments are additionally frequently used to improve training and in the choice of groups for rivalry. The poor execution of Indian athletes and sportsmen at the International challenge has been of incredible concern especially to coaches, physical educationist and sports researchers. Endeavors have been made to improve the gauges of our sportsmen since long, notwithstanding, little achievement has so far been accomplished in this regard. Handball is a very flexible game that makes huge physical, mental, specialized and strategic requests, however it is the physical fitness segment that will straightforwardly decide the level of interest that can be put on the specialized, strategic and mental capacities of a player.

Basketball and handball are among the most famous group activities on the planet and their presentation is exceedingly reliant upon a blend of specialized, physical and strategic skills of players among which physical fitness assumes a crucial job during a match. In basketball and handball, sudden and extreme alter of course, normal commencement and preventing, and contact among players generally rely upon dynamic balance. Clearly basketball and handball playing capacity is conceivably identified with balance upkeep while moving, passing, shooting, spilling and so forth. After commencement of basketball and handball in Olympics, it consistently improved the players' physical fitness, constitution, physiological and mental physiognomies. The power of the games has been upgraded in view of new training methodologies. Injuries can counter the accommodating effects of sports investment if an athlete who is unfit to keep on partaking in view of remaining impacts of injury. During a basketball and handball match players perform sporadic exercises at high force that require a mix of oxygen consuming and anaerobic fitness. Disregarding the different medical points of interest, cooperation in a physically requesting game, for example, basketball and handball can result in expanded danger of injury.

Multidirectional speed, which comprehends straight and alter of-course speed (i.e., arranged agility), is an energetic physical quality for some athletes (Lockie et al., 2013). Agility training is believed to be a re-inforcement of engine programing through neuromuscular molding and neural variety of muscle axle, Golgi-ligament organs, and joint proprioceptors (Singh et al., 2015). Agility is a fundamental factor in most field requiring rapid activity (quickening, maximal speed) and especially group activities rivalry. Moreover, agility is a formula of speed and coordination (Homoud, 2015). The responsive idea of movement examples requires the ability to achieve high maximal running speeds and to quickly alter course. Accomplishing maximum speed earlier or having more prominent quickening has clear focal points in numerous sports. Improved quickening and speed are practiced by expanding the physical, metabolic, and neurological systems related with run. The game basketball and handball includes visit, entire body maximal ballistic activities notwithstanding quick parallel movement in reaction to outside upgrades. All things considered, there is dependably a probability of injury chance that must be perceived. Very couple of studies have been led to address these components especially on Indian basketball and handball players. This investigation endeavors to discover the impact of an exercise training protocol on agility, speed and injury prevalence among University level men basketball and handball players.

Flexibility is usually depicted as a segment of general physical fitness. Flexibility has been characterized as the capacity to make movements through the maximum conceivable sufficiency or a scope of movement. Flexibility exercise can diminish view of agony guaranteeing strong exercise trouble dependent on diminished level of leftover muscle action as a result of static extending of the included muscle. Utilized preceding exercise static extending may improve execution. The latest research has demonstrated that strength created with exercise on bounce back movement can be better upgraded by include - flexibility training. It is straightforwardly brought about by decrease in arrangement versatile parts firmness expanding the use of flexible strain vitality during bounce back exercise movement. In any case, the essential significance of the flexibility is in preventing and decreasing the injuries.

Flexibility and agility are two significant parameters of fitness for athletes and furthermore for the choice of athletes for any challenge. Subsequently, it is very basic to comprehend if any connection is present among flexibility and agility to have increasingly useful impact on athlete's presentation.

Decrease of body fat has been related with execution improvement in explicit sports. Thus, body piece analysis is much of the time incorporated into physical fitness assessment. In the time of rivalries winning is what being regarded; for which the exhibition checks. The exhibition relies upon numerous variables however agility, flexibility and its relationship with body mass file (BMI) and skin overlap thickness (SFT) is one among that which isn't given that much significance. BMI and SFT are very significant components which should be focused more alongside different fitness parameters when we search for the presentation in a sports occasion. As far as anyone is concerned, there is scarcity in writing in regards to the connection among flexibility and

agility and these parameters connection with SFT and BMI.

METHODOLOGY

Subjects -

Forty (N = 40; 20 Basketball + 20 Handball) University level basketball and handball players were chosen. These players have least of 3 years of playing knowledge and offered ability to participate in the examination. The general attributes of the members in experiment group and control group. A composed clarification of the experimental method and potential hazard elements were given to every player and their educated assent was acquired.

Group Design -

The subjects were randomly alloted to two groups; Group 1 (EXP = 20; 10 Basketball + 10 Handball) and Group 2 (CON = 20; 10 Basketball + 10 Handball). Testing of each group was performed on two events first before administration of training as pre-test and following two months of training as post-test.

Exercise Training Protocol -

Both the experimental and control group endured a common fitness training for 20 min for each season 3 to 5 seasons in seven days for about two months with a continuous increment in number of seasons as the training advanced. The experimental group experienced an uncommon condescended exercise training protocol notwithstanding the fitness training, which incorporate segments of reaction time, flexibility, mobility, balance, explosive strength and Vo2 max. The training incorporates agility drills, adjusting exercises, static and ballistic extending, multidirectional movement drills and snappiness training.

Methods of Assessment

Table 1: Methods of Assessment

S. No.	Variables	Method of Assessment
1	Agility	Semo agility test
2	Speed	50 meters' yard dash test
3	Injury prevalence	Questionnaire

1. Agility

Semo agility test was utilized to assess the subjects' agility as appeared in table 1. The test was managed for two trails with rest in the middle. The time taken to finish the course was recorded to the closest seconds. The best of two trails was the last score.

2. Speed

The speed of subjects was estimated by 50 meters' yard dash test as appeared in table 1. The tester educates and utilized the direction prepared and applaud, the subject would keep running over the end goal, drawn at 50 meters from the beginning line, as quick as could reasonably be expected. The score was the passed time to the closest tenth second between the beginning sign and the subject intersection the end goal.

3. Injury prevalence

Injury prevalence was surveyed by a questionnaire as appeared in table 1 which went for social event data on the sort, number of event, conditions of events (match/training) when the training lengths for both the groups.

STATISTICAL ANALYSES

The data were collected from each subject when the training period and Analysis of Covariance (ANCOVA) was utilized to discover the significant difference between the experimental and control groups on every factor independently. All the statistical tests were determined utilizing the statistical bundle for the sociology (SPSS) for MacBook Air (Version 23). The level of statistical criticalness was set at $p< 0.05$ as the quantity of subjects was constrained and furthermore as the chose factors may vary because of different incidental variables.

RESULTS AND DISCUSSION

The impacts of free chosen elements were resolved through the collected data by utilizing proper statistical techniques and the results are presented underneath. The analysis of co-difference (ANCOVA) test on the data got for agility, speed and injury prevalence of the pre-test, post-test and balanced post-test means of experimental group and control groups have been investigated. The level of increase in agility, speed and injury prevalence before training and following two months of training among EXP group and CON group.

CONCLUSION

Improvement in agility and flexibility is seen in the wake of giving training diminishing the rate of injury and improving the presentation.

The result of the investigation uncovered that the training group has demonstrated significant improvement in agility, speed and injury prevalence. The present examination has made a truthful endeavor to diminish the injuries because of the exercise training protocol and which thus will improve the presentation of University level men basketball and handball players. It is recommended that an altered exercise training protocol for basketball and handball players at all skill levels and age be implemented to prevent injury.

REFERENCES

1. Alricsson M., Harms-Ringdahl K., Wemer S. (2001). Reliability of sports related functional

tests with emphasis on speed and agility in young athletes. Scandinavian Journal of Medicine and Science in Sports; 11: pp. 229-232.

2. Buchheit M., Laursen P. B., Kuhnle J., Ruch D., Renaud C., Ahmaidi S. (2009). Game-based training in young elite handball players. Int. J Sports Med.; 30: pp. 251-258.

3. Castello F., Kreis E. J. (1993). Sports Agility. Nashville, TN: Taylor Sports.

4. Castello F. & Kreis E. J. (1993). Sports Agility. Nashville, TN: Taylor Sports.

5. Homoud M. N. (2015). Relationships between Illinois agility test and reaction time in male athletes. Swedish J Sci Res.; 2(3): pp. 28-33.

6. Homoud MN. Relationships between Illinois agility test and reaction time in male athletes. Swedish J Sci Res. 2015; 2(3): pp. 28-33.

7. Homoud M. N. (2015). Relationships between Illinois agility test and reaction time in male athletes. Swedish J Sci Res. 2015; 2(3): pp. 28-33.

8. Lim J.H., Wee E.H., Chan K.Q., Ler H.Y. (2012). Effect of plyometric training on the agility of students enrolled in required college badminton programme. International Journal of Applied Sports Sciences; 24(1): pp. 18-24.

9. Lockie R.G., Schultz A.B., Callaghan S.J., Jeffriess M.D., Berry S.P. (2013). Reliability and validity of a new test of change- of-direction speed for field-based sports: The Change-of-Direction and Acceleration Test (CODAT). J Sports Sci. Med.; 12: pp. 88-96.

10. Maffulli N., Longo U.G., Spiezia F., Denaro V. (2010). Sports injuries in young athletes: long-term outcome and prevention strategies. Phys Sports med.; 38(2): pp. 29-34.

11. Robinson B.M. & Owens B. (2004). Five-week program to increase agility, speed, and power in the preparation phase of a yearly training plan. Strength and Conditioning; 26(5): pp. 30-35.

12. Singh A., Boyat A.V., Sandhu J.S. (2015). Effect of a 6-week plyometric training program on agility, vertical jump height and peak torque ratio of Indian Taekwondo players. Sport Exer Med Open J. 2015; 1(2): pp. 42-6.

13. Steffen K., Myklebust G., Olsen O.E., Holme I., Bahr R. (2008). Preventing injuries in female youth football-a cluster-randomized controlled trial. Sci. and J Med Sci. Sports, 14. [Epub ahead of print].

Corresponding Author

Mr. Vijay Kumar*

Research Scholar, Department of Physical Education Panjab University, Chandigarh

vijayaspal87@gmail.com