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Effect of circuit training on speed and agility of under graduate physical education students

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Abstract

The purpose of this study was to investigate the effect of circuit training on Speed and Agility of under graduate physical education students of Swami Vivekanand Subharti University Meerut, Uttar Pradesh. To achieve the purpose of the study, the sixty (60) male students were selected who served as subjects and their age group was between 18 to 23 years. The selected subjects were divided into two groups i.e., experimental and control group. 30 male students were selected for each group as research subjects. The experimental group underwent through circuit training exercise consisted 8 station for 12 weeks. The control group was not given any training apart from their regular activities. The speed and agility which were examined during the study were speed and agility. All the data which was collected before the training and after applied the training programme were examined by using dependent "t" test to find out the significant difference between the means of pre and post test score of experimental group after applied 12 weeks of circuit training. The level of confidence was fixed at 0.05.

The Obtained 't' score of Speed were found higher than the required table value 1.67 to be significant at 0.05 level of confidence at df 29. It shows that Post data score of Physical education students of experimental group is found better than the Pre- test score of Physical education students. Agility was found insignificant difference between Pre and Post data of Physical education students. The Obtained 't'-scores Agility (1.46) were found lower than significant table value 1.67 level of confidence at df 29.

Keywords: Circuit training, speed, agility, physical education, under graduate students

Introduction

Physical education is generally understood as organization of some games, sports or physical education activities in schools. There are schools where specific periods are allocated for this subject in the time table. It has been noticed that during such periods, most of the students are either left on their own to play the games in a way they like or they are taken to the field where they engage themselves in different sports without the guidance or supervision of teachers. In some schools, selected students play games like football, cricket, volleyball, hockey, basketball, and so on. Annual sports are organized, but again in such activities only a few selected students participate. All these experiences taken together provide a basic understanding of the physical education as a concept. However, when we go into details of the aims, objectives and concepts of physical education, we learn that they go beyond these traditional beliefs.

Circuit Training was developed to be an all-inclusive work out high lighting both muscular and cardiovascular endurance. Circuit training is a combination of six or more exercises performed with short rest periods between them for either a set number of repetitions or a prescribed amount of time. One circuit is when all of the chosen exercises have been completed. Multiple circuits can be performed in one training session". Circuit training is a form of body conditioning that involves endurance training, resistance training, high-intensity aerobics, and exercises performed in a circuit, similar to high-intensity interval training. An exercise "circuit" is one completion of all set exercises in the program.

The quick pace and constant changing nature of circuit training places a unique type of stress on the body, which differs from normal exercise activities, like weight training and cardiovascular conditioning. The demands of circuit training tend to prepare the body in a very even, all-round manner.

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Circuit training is one of the best ways I've found to condition your entire body (and mind). There are many other reasons why circuit training is a fantastic form of exercise, and what most of these reasons come down to is flexibility. In other words, circuit training is totally customizable to your specific requirements. In fact, circuit training is a favorite form of exercise for the British Royal Marine Commandos because they tend to spend a lot of time on large ships. The confined spaces means that circuit training is sometimes the only form of exercise available to them. Circuit training can be totally personalized. Whether you're a beginner, or an elite athlete, you can modify your circuit training workout to give you the best possible results.

A circuit training workout can be modified to give you exactly what you want. Whether you want an all-over body workout, or you just want to work on a specific body area, or you need to work on a particular aspect of your sport, this can all be accommodated. Also, you can change the focus of your circuit training to emphasize strength, endurance, agility, speed, skill development, weight loss, or any other aspect of your fitness that is important to you. Circuit training is time efficient. No wasted time in between sets: Maximum results in minimum time. You can do circuit training just about anywhere. One of my favorite places for doing circuit training is at some of the parks and playground areas near where I live. You don't need expensive equipment. You don't even need a gym membership. You can just as easily put together a great circuit training workout at home or in a park. By using your imagination, you can devise all sorts of exercises using things like chairs and tables, and even children's outdoor play equipment like swings and monkey bars. Another reason why I like circuit training so much is that it's great fun to do in pairs or groups. Half the group exercises while the other half takes a rest and motivates the exercising members of the group.

Speed is the magnitude of a body's displacement per unit of time without regard to direction. The SI unit of speed is meter per second (m/s), kilometer per hour (km/h). In sporting terms, speed is the rate at which someone can move all or part of their body when performing a movement or covering a distance. Speed in physical education is important as it makes up one of the components of fitness.

Agility is defined as "a skill-related component of physical fitness that relates to the ability to rapidly change the position of the entire body in particular area with speed and accuracy. Agility training improves flexibility, balance, and control. Agility helps the body to maintain proper alignment and posture during movement. Additionally, agility drills encourage our body to learn how to maintain correct body placement. Stretch existing resources and the organization itself to do new things in new ways; Support faster change within the organization; and, add the most value possible to the customer, keeping the organization strong and ultimately profitable.

Materials and Methods

The subjects were selected from Swami Vivekanand Subharti University, Meerut. Total 60 students were selected For the purpose of the study and before selecting the final subjects of the research, cooper's 12 minute run/walk test will be conducted to assess the performance of population. The age level of the subject was taken between 18-23 years. The variable that were taken into account was Speed and Agility.

Circuit Training Program: The experimental group was

trained five times a week on Monday to Friday for Twelve weeks. Training protocol included a five minute warm-up and two rounds - in 28 min - of eight station circuit training with 30 sec exercise and 60 sec rest at each station. The circuit stations include Interval Runs, Long, Slow Runs, Leg Strength Exercises, High Knees, Ladder Drills, Dot Drills, and Lateral Plyometric Jumps. Lateral plyometric jumps help build explosive power, balance, and coordination by using our natural, Forward Running, High-Knee Drills, Lateral Running, Side-to-Side Drills, Jump Box Drills, Shuttle Runs, strength exercise, cardiovascular exercise, battle rope, leg raise, sprints races etc. In the last six weeks, subjects were trained three rounds of the same circuit in 42 min, however, with increase rest period to 90 sec in each station. The training sessions in this phase ended with a five minutes cool down. The control group maintained their normal routine, however, and was not involved in any physical training. Training and data collection were done at the under graduate physical education students of Swami Vivekanand Subharti University, Meerut Uttar Pradesh.

Speed test administration: The test involves running a single maximum sprint over 50 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary standing position (hands cannot touch the ground), with one foot in front of the other.

Agility test administration: Test was used to measure agility. The participant stands at the Cone A at the base of the "T". The researcher gives the signal to 'Go', and starts the stopwatch and the test commences. The participant runs to and touches Cone B, side steps to Cone C and touches it, again side steps to Cone D and touches it, side steps back again to the Cone B and touches it, and then runs backwards to the Cone A. The researcher stops the stopwatch and ends the experiment when the participant completes the full circuit, and records the time. The participants perform two maximum efforts.

To find out the effect of circuit training on speed and agility of under graduate physical education students, the paired two samples for means dependent t-test was applied.

Results and Discussion

Table 1: Effect of circuit training on speed and agility of under graduate physical education students

Component	N	Mean	S.D.	t-ratio	
Speed	Pre	30	7.49	0.91	3.43*
	Post	30	7.46	0.90	
Agility	Pre	30	11.14	1.08	1.46
	Post	30	11.11	1.11	

*Significance at 0.05 level of confidence df (29) =1.67

Table; 1 revealed that the average score of Pre data of Speed and Agility of Physical education students were 7.49 and 11.14 respectively whereas the average scores of Post data of Speed and Agility of Physical education students were 7.46 and 11.11. Analysis of data showed the significant difference between Pre and Post data of Physical education students in Speed as the obtained 't' score of Speed was found higher than the required table value 1.67 to be significant at 0.05 level of confidence at df 29. Agility was found in significant difference between Pre and Post data of Physical education students. The obtained 't'-scores of Agility (1.46) were found

lower than significant table value 1.67 level of confidence at df 29.

The result of the study showed that the significant improvement has noted after applied the circuit training on physical education students. (Dr. P Gopinathan, 2018), However, the improvement in agility was not shown. It may be due to dietary habits, living conditions, economic conditions, environment condition etc. (Sameer Bashir & R Muthalekuvan 2018 and Shrikant S Mahulkar (2016). The graphical representation of training effect is shown in fig.-1

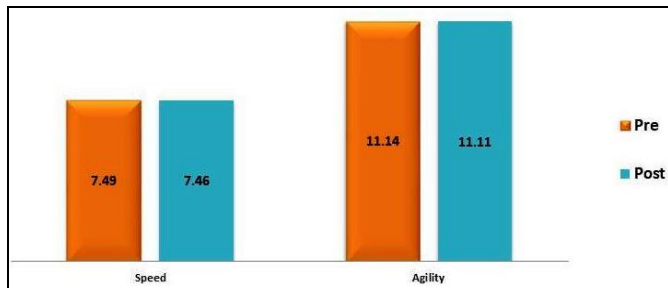


Fig 1: Effect of Circuit training on speed and agility of under graduate physical education students

References

- Andrews JR, McLeod WD, Ward T, Howard K. The cutting mechanism. *Am J Sports Med.* 1977;5:111-121.
- Bennell K, Wajswelner H, Lew P, Schall-Riauour A, Leslie S, Plant D, *et al.* Isokinetic strength testing does not predict hamstring injury in Australian Rules footballers. *Br J Sports Med.* 1998;32:309-314.
- Bloomfield J, Polman R, O'Donoghue P, McNaughton L. Effective speed and agility conditioning methodology for random intermittent dynamic type sports. *J Strength Cond Res.* 2007;21:1093-1100.
- Bressel E, Yonker JC, Kras J, Heath EM. Comparison of static and dynamic balance in female collegiate soccer, basketball, and gymnastics athletes. *J Athl Train.* 2007;42:42-46.
- Brown LE, Ferrigno V, eds. *Training for Speed, Agility, and Quickness.* (2nd ed.). Champaign, IL: Human Kinetics, 2005.
- Cohen J. *Statistical Power Analysis for the Behavioral Sciences.* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates, 1988.
- Croisier JL, Maertens de Noordhout B, Maquet D, Camus G, Hac S, Feron F, *et al.* Isokinetic evaluation of hip strength muscle groups in unilateral lower limb amputees. *Isokinet Exerc Sci.* 2001;9:163-169.
- Dawes J, Roozen M. eds. *Developing Agility and Quickness.* Champaign, IL: Human Kinetics, 2012.
- Dawson B, Hopkinson R, Appleby B, Stewart G, Roberts C. Player movement patterns and game activities in the Australian Football League. *J Sci Med Sport.* 2004;7:278-291.
- Delextrat A, Cohen D. Strength, power, speed, and agility of women basketball players according to playing position. *J Strength Cond Res.* 2009;23:1974-1981.
- Gribble PA, Hertel J. Considerations for normalizing measures of the star excursion balance test. *Meas Phys Educ Exerc Sci.* 2003;7:89-100.
- Hertel J, Braham RA, Hale SA, Olmsted-Kramer LC. Simplifying the star excursion balance test: Analyses of subjects with and without chronic ankle instability. *J Orthop Sports Phys Ther.* 2006;36:131-137.
- Hertel J, Miller SJ, Denegar CR. Intratester and intertester during the star excursion balance tests. *J Sport Rehabil.* 2000;9:104-116.
- Hewitt J, Cronin J, Button C, Hume P. Understanding deceleration in sport. *Strength Cond J.* 2011;33:47-52.
- Jarvis S, Sullivan LO, Davies B, Wiltshire H, Baker JS. Interrelationships between measured running intensities and agility performance in subelite rugby union players. *Res Sports Med.* 2009;17:217-230.
- Jovanovic M, Sporis G, Omrcen D, Fiorentini F. Effects of speed, agility, quickness training method on power performance in elite soccer players. *J Strength Cond Res.* 2011;25:1285-1292.
- Knapik JJ, Bauman CL, Jones BH, Harris JM, Vaughan L. Preseason strength and flexibility imbalances associated with athletic injuries in female collegiate athletes. *Am J Sports Med.* 1991;19:76-81.
- Kovacs MS, Roetert EP, Ellenbecker TS. Efficient deceleration: The forgotten factor in tennis-specific training. *Strength Cond J.* 2008;30:58-69.
- Lockie RG, Schultz AB, Callaghan SJ, Jeffriess MD. The effects of traditional and enforced stopping speed and agility training on multidirectional speed and athletic function. *The Journal of Strength & Conditioning Research.* 2014;28(6):1538-1551.
- Park SY, Lee IH. Effects on training and detraining on physical function, control of diabetes and anthropometrics in type 2 diabetes; a randomized controlled trial. *Physiotherapy theory and practice.* 2015;31(2):83-88.
- https://en.m.wikipedia.org/wiki/Physical_education
- https://www.google.com/search?q=agility+definition+according+to+experts&rlz=1C1RLNS_enIN930IN930&oq=Agility+definition+according+&aqs=chrome.1.69i57j33i160.18295j0j15&sourceid=chrome&ie=UTF-8
- https://www.google.com/search?q=concept+of+circuit+training&rlz=1C1RLNS_enIN930IN930&oq=Concept+of+circuit+training&aqs=chrome.0.0i512j0i22i30j0i390.15520j0j15&sourceid=chrome&ie=UTF-8
- https://www.google.com/search?q=circuit+training+definition+according+to+authors&rlz=1C1RLNS_enIN930IN930&sxsrf=ALeKk02fn6T9zWVnK1Dnyrs1KpsXeU0A%3A1629089503581&ei=34ZYanItbt9QOL25N4&oq=circuit+training+definition+accord&gs_lcp=Cgnd3Mtd2l6EAEYAjIICCEQFhAdEB4yCAghEBYQHRAeMggIIRAWEB0QHjIICCEQFhAdEB4yCAghEBYQHRAeOgcIIXCwAxAnOgcIABBHELAD0gcIABCwAxBD0gUIABCABDoJCAAQFhAeEIsDOgYIABAWEB46BQghEKABSGQIQRgAUOUdWPRYYIJxaAFwAngAgAGFBIGBvw-SAQswLjMuMy4xLjAuMZgBAKABAcgBCrgBAsABAQ&sclient=gws-wiz
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