

Effect of Circuit Training on Selected Bio-Motor Variables among Men Softball Players

Dr. R. Senthil Kumaran¹ & Maidam Chaithanya Bhagath²

¹Director- Physical Education, Directorate of Physical Education, Alagappa University, Karaikudi, Tamilnadu, India.

²Ph.D., Research Scholar, Alagappa University College of Physical Education, Karaikudi, Tamilnadu, India.

Abstract

The purpose of the study was to find out the Effect of circuit training on selected bio-motor variables among men softball players. It was hypothesized that there would be significant differences on selected bio-motor variables due to the effect of circuit training among softball players. For the present study the 30 men softball players from Alagappa University College of Physical Education, Alagappa University, Karaikudi, sivagangai District, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'I' and Group 'II'. Group 'I' underwent circuit training and Group 'II' has not undergone any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying dependent 't' test. The level of significance was set at 0.05. The circuit training had positive impact on speed and agility among softball players.

Key words: Circuit Training, Speed, Agility, Softball.

Introduction

Although many of us assume that softball was derived from baseball, the sport's first game actually happened due to a football. While the game was originally advertised as an inside game for baseball players looking to take care of their dexterity during the off season, it gained such a lot popularity and recognition that it quickly became its own official sport. The history of softball remains unfolding, and therefore the game has undergone numerous modifications since its creation in 1887, but it's still one among the foremost preferred sports games within the country and has developed a following in several countries throughout the planet, especially in Australia, China, and Japan (McDowell & Ciocco, 2005).

Circuit training may be a practical method entailing some preliminary planning, but beyond that, it needs co-ordination. Athletes find it motivating since it makes conditioning fun and challenging through competition against team mates. Circuit training may be a continuous series of exercises attempting to enhance as many components of fitness as possible especially endurance. Generally, six to 12 stations are up. Selection and sequence of the activities within a lap of circuit is formed considerably given to the continual nature of the performance (Antonia, et al. 2013).

Methodology

The purpose of the study was to find out the effect of circuit training on selected bio-motor variables among softball players. It was hypothesized that there would be significant differences on selected bio-motor variables due to the effect of circuit training among softball players. For the present study the 30 men softball players from Alagappa University College of Physical Education, Alagappa University, Karaikudi, sivagangai District, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post

test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'I' and Group 'II'. Group 'I' underwent circuit training and Group 'II' has not undergone any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying dependent 't' test. The level of significance was set at 0.05.

Table 1. *Variables and Test*

S.No	Variables	Tests
1	Speed	50 Metre Dash
2	Agility	T Agility Run Test

Results

The findings pertaining to analysis of dependent 't' test between experimental group and control group on selected bio-motor variables among men softball players for pre-post test respectively have been presented in table 2 to 3.

Table 2. *Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Circuit training Group (CTG)*

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (\pm)	σ DM	't' Ratio
1	Speed	7.35	7.15	0.20	0.12	0.03	6.12*
2	Agility	12.48	11.73	0.75	0.17	0.04	16.89*

* Significant at 0.05 level

Table 2 shows the obtained 't' ratios for pre and post test mean difference in the selected variable of speed (6.12) and agility (16.89). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were significantly improved in performance variables namely speed (0.20, $p < 0.05$) and agility (0.75, $p < 0.05$) thus the formulated hypothesis is accepted.

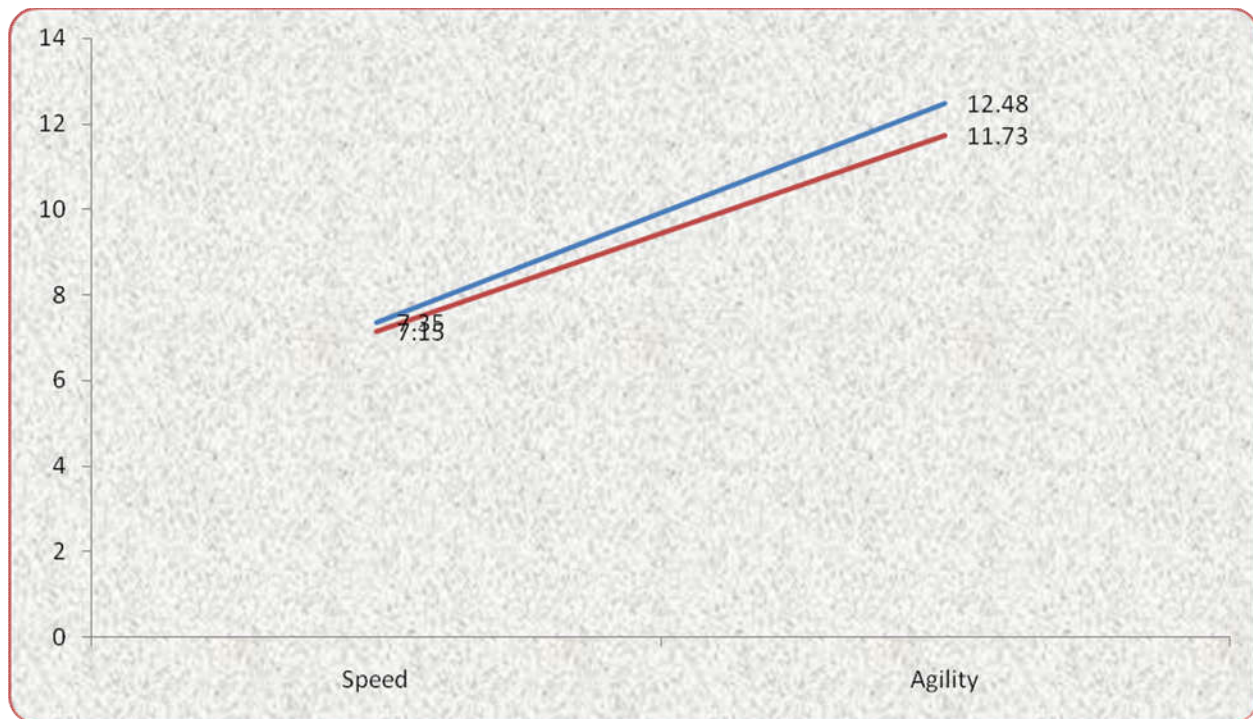


Figure 1. Comparisons of Pre – Test Means and Post – Test Means for Experimental Group in Relation to Bio-motor variables

Table 3. Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Control Group (CG)

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Speed	7.36	7.35	0.01	0.13	0.03	0.51
2	Agility	12.49	12.56	0.07	0.17	0.04	1.41

* Significant at 0.05 level

Table 3 shows the obtained 't' ratios for pre and post test mean difference in the selected variable of speed (0.51) and agility (1.41). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were not significantly improved in performance variables speed (0.01, $p > 0.05$) and agility (0.07, $p > 0.05$).



Figure II. Comparisons of Pre – Test Means and Post – Test Means for Control Group in Relation to Bio-motor variables

Discussions on Findings

An effective softball player possesses high speed in order to run, catch, field and retreat. A player must have ability to move quickly to gain position and to reach the position which is possible by speed. The findings of the present study have strongly indicates that circuit training of twelve weeks have significant effect on selected bio-motor variables i.e., speed and agility of men softball players. Hence the hypothesis earlier set that circuit training programme would have been significant effect on selected bio-motor variables in light of the same the hypothesis was accepted.

Acknowledgments

The authors thank the men Softball Players for their support in data collection and analysis.

Conclusions

On the basis of findings and within the limitations of the study the following conclusions were drawn:

1. The circuit training had positive impact on speed and agility among softball players.
2. The experimental group showed better improvement on speed and agility among men softball players than the control group.

References

1. Antonio, P., Quirico, F.,Giuseppe, T.M., Marco, N. and Antonino, B. (2013).Effects of high-intensity circuit training, low-intensity circuit training and Endurance training on

- blood pressure and lipoproteins in middle-aged overweight men, *Journal of Strength and Conditioning Research*; 1803-10.
2. Febin Jebaraj, A & Dr. C Robert Alexandar (2016). Effect of aerobic exercise and circuit training on obesity among school students. *International Journal of Physical Education, Sports and Health*. 3, 1.
 3. Jelsema T, Lombardo D, Fitts GP, et al. National estimates of softball related concussions presenting to emergency departments from 2004-2012. *Journal of Exercise, Sports & Orthopedics*. 2015;2(4):1-4.
 4. Koestanto, S. H., Setijino, H., & Mintarto, E. (2017). Model Comparison Exercise Circuit Training Game and Circuit Ladder Drills to Improve Agility and Speed. *Journal of Physical Education, Health and Sport*, 4(2), 78-83.
 5. McDowell M, Ciocco M. A. (2005). controlled study on batted ball speed and available pitcher reaction time in slowpitch softball. *Br J Sports Med*. 2005;39(4):223-225.
 6. Number of participants in softball in the United States from 2006 to 2016. Statista. August 2017. Available at: <https://www.statista.com/statistics/191722/participants-in-softball-in-the-us-since-2006/>. Accessed June 25, 2018.
 7. Russell DA. Explaining the 98-mph BBS standard for ASA softball. May 12, 2008. Available at: <http://www.acs.psu.edu/drussell/bats/bbs-asa.html>. Accessed June 22, 2018.
 8. Singh, H. (1991). *Science of Sports Training*. New Delhi: D.V.S. Publications, 1991.
 9. Strickland JS, Bevill GR. Protective capabilities of metal-frame versus plastic-frame softball fielder's masks. Poster presented at: ASME 2018 International Mechanical Engineering Congress and Exposition (IMECE); November 9-15, 2018; Pittsburg, PA.