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Effect of 8-weeks coordination training on time movement anticipation of young cricket players

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Abstract
The purpose of the study was to investigate the effect of 8-weeks coordination training on time movement anticipation of young cricket players. A total of 16 male (8 players in each group) cricket players age ranged from 12-15 years with mean & SD 14.23±1.67 years, from LNIPE cricket nursery, Gwalior selected as subjects for the study. The purposive sampling technique was used to attain the objectives of the study. Vienna test system (VTS), a leading computerized psychological assessment tool was used for measuring time movement anticipation. The Vienna Test System SPORT is perfectly designed for sports psychology assessment. The psychometrically valid tool for profile analysis, talent assessment and development of training plans gives players and athletes a clear picture of their sports psychology profile – in terms of both skills and personality (Vienna Test System sports, 2017). Researcher analyzed the time movement anticipation in which how consistently in term of the same latent ability dimension is assessed in all respondents. Pre test post test control group design was adopted for this study. The training programme was carried out for a total duration of eight weeks. All subject, after having been informed objective of the study, gave their consent and volunteered to participate in this study. The training was carried out thrice a week on alternate days of the week for each group. ANCOVA was applied as statistical technique to analyze the effect of 8-weeks coordination training on time movement anticipation, the alpha level was set at 0.05. Statistical analysis of the data revealed there is significant difference in time movement anticipation as the f value found significant ($p<0.05$), Hence it may be inferred that 8-weeks coordination training is effective for improving time movement anticipation of young cricket players.

Keywords: coordination training, Vienna test system, time movement anticipation, cricket

1. Introduction
Human movement starts before birth and continues until death. In the beginning years of their lives, human beings can become familiar with their environment and communicate with it through movement. Such a communication enables humans to gain meaningful experiences from their interactions with environmental phenomena. Thus, movement provides the child with situations based on which they can explore their surrounding world. (Ackerman & Cianciolo, 2000) [1]. Anticipation is an important part in sports expertise; it refers to the ability to predict what is likely to happen prior to the event itself. This ability to "read the play" is essential in sport where the speed of the game means that decisions must typically be made in advance of an opponent's action. Key factors behind anticipation in sport include visual abilities and perceptual and cognitive skills. The ability to recall and recognise an evolving pattern of play is the strongest predictor of anticipatory skill in team ball sports (Piras, Lobietti & Squatrito, 2014) [6].

It seems clear that the high levels of skill displayed by well-practiced subjects could not be attained without proper timing. Correct timing seems to be necessary in at least two classes of situations. The first involves making some motor response coincidentally with some external event (e.g., hitting a ball), and thus involves anticipation of when event will arrive. Anticipation of the time arrival of stimulus events allows the subject to get his response under way early and to respond coincidentally with the event, thus avoiding the longer reaction-time delays characteristic with non-anticipated stimuli which is the situation for traditional reaction-time tasks. A second class involves no apparent external stimuli, and is concerned with the movement of the various body segments in the proper direction and at the proper time so that the movement is coordinated and the resulting movement is smooth and efficient. An understanding of the laws describing both classes of timing seems essential to an understanding of skilled performance (Schmidt, 1968) [7].

Scientific method of training and coaching is one of the key areas, which all the successful teams have concentrated and maintained for great results. Even though there are numerous methods of training available, the role of coordination training in developing time movement anticipation is undisputed. Recent studies have supported the theory that coordination training, when executed for the appropriate duration at the appropriate intensity, meets the criteria for developing performance of cricket, tennis etc. But less information is available on this area of research on cricket players. Hence, the investigator was interested to find out the effects of 8 weeks of coordination training on time movement anticipation of young cricket players.

2. Materials and Methods
2.1 Selection of Subjects
To systematize the study, subjects were divided into two groups (experimental group and control group). A total of 16 male (8 players in each group) cricket players age ranged from 12-15 with mean & SD 14.23±1.67 years, from LNIPE cricket nursery, Gwalior selected as subjects for the study. The purpose of the research was explained to all the subjects and subjects were motivated to put their best during each trial

2.2 Selection of Variables
- Independent Variable
  - 8-weeks Coordination Training
- Dependent variable
  - Time movement anticipation

2.3 Criterion Measures

Time movement anticipation was measured through Vienna Test System (VTS). The Vienna test system is leading computerized psychological assessment tool. VTS ensures the highest possible level of objectivity and precision, including aspects that cannot be measured by traditional paper-and-pencil tests. The scoring of test results is fast and accurate.

Table 1: Criterion Measures

Variable	Test	Unit
Time movement anticipation	Vienna Test System S5 (linear form with18 items)	Sec

2.4 Experimental Design

Pre-test post-test control group design was adopted for this study. Further the subjects are divided into two groups experimental and control group. The experimental group participated in training program. No treatment was given to control group. The training programme was carried out for a total duration of eight weeks. Duration of training programme was of 45 minutes.

2.5 Administration of Training Programme

The training schedule prescribed by the researcher was applied to experimental group and training was personally supervised by the researcher. The training was carried out for a period of eight weeks, three days a week excluding the time consumed for conducting per-test and post test. The scholar demonstrated the training for experimental group. Each subject of the experimental group performed their respective training. Sufficient and required recovery was provided between the tests. The scholar demonstrated each exercise with its movement structure. The control group was not allowed to undergo the training program. From the first week to the eighth week, the volume of training load and training increased gradually for the experimental group

Table 2: Exercise Protocol

Exercise	Week 1 and 2	Week 3 and 4	Week 5 and 6	Additional progression	Week 7 and 8
Warming up(in min)	3	3	3		3
Ball Drops Catches	30	2x20	2x30		3x20
Alternate Hand Wall Drop Catch	30	2x20	2x30		3x20
Mirror drill	30sec	45 sec	60 sec		75 sec
Push up and catch	15	2x10	3x10		2x20
skipping	30	50	70	variation	90
Cool down(in min)	3	3	3		3

2.6 Administration of Test

- Time/Movement Anticipation (ZBA)
- Purpose: To measure the subjects' estimation of the motion of objects in space
- Test form: S5 (Linear form, time anticipation screening, 18 items)
- Testing duration: 5 minutes

2.7 Mean Deviation Time Total (MDT)

The mean of the time deviations for all items. The time deviation is the difference between the anticipated time of the ball crossing the second line and the actual time at which it does so. This value is calculated for all items.

2.8 Administration of the test

A green slowly-moving ball can be seen on the screen. Then at an unknown point it disappears and two red lines are displayed instead. One of the lines is situated at the point where the green ball disappeared. The other line is the goal. To measure time anticipation, the respondent presses a button in the moment when he / she think that the ball should have reached the second line. To measure movement anticipation, the respondent is additionally asked to indicate the position where the ball will have reappeared. This is done by means of two keys that control an arrow on the screen. The respondent receives feedback only during the instruction phase. This includes both on the ball's prospective trajectory as well as on where the ball was located at the time he / she pressed the button. In the test phase, this feedback is no longer issued. The difficulty of the task is varied as follows: First the ball's movements are simple and linear. Then they are curved and linear. Next the movements are constant sine-waves that later on become modulated as regards amplitude, frequency, and a combination of amplitude and frequency.

Scoring: Time anticipation: The time error is registered as time difference in hundredth of seconds.

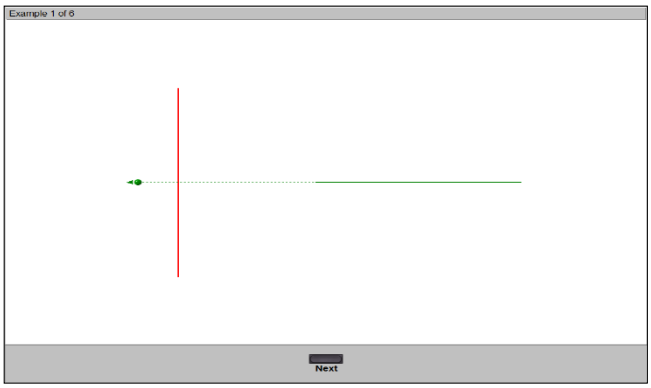

Fig 1: Screenshot of Time Movement Anticipation test on Vienna test system

2.9 Statistical Technique

The differences in the means of experimental group and a control group for time movement anticipation was tested for significance by applying Analysis of co-variance (ANCOVA), and the level of significance chosen was 0.05.

3. Results

The main purpose of the study was to see the effect of 8 Weeks coordination training on time movement anticipation of young cricket players. To analyse the effects of coordination training on time movement anticipation ANCOVA was applied.

In this study effect of coordination training was analysed on time movement anticipation.

Different types of descriptive statistics such as mean and

standard deviation was computed to describe each variable statistically. The level of significance was set at 0.05. Its results have been depicted in following tables

Table 3: Descriptive statistics of time movement anticipation

Group	Mean		SD	
	Pre	Post	Pre	Post
Experimental group	0.668	0.533	0.04	0.08
Control group	0.652	0.626	0.06	0.05

Table 3 indicates mean and standard deviation of time movement anticipation of experimental and control group. Mean and SD of pre-test and post-test of experimental group is 0.668 ± 0.04 & 0.558 ± 0.08 respectively and Mean and SD of pre-test and post-test of control group is 0.652 ± 0.06 & 0.626 ± 0.05 respectively.

Table 4: Levene's test of equality of error variances

F	df1	df2	p-value
.200	1	14	.662

To test the equality of variances time movement anticipation, Levene's test was used. The F-value was insignificant as the p-value (.662) was more than 0.05. Thus the null hypothesis of equality of variances might be accepted, and it was concluded that the variances of the two groups were equal. The results were presented in Table 4.

Table 5: ANCOVA table for the data on time movement anticipation

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Pre	0.014	1	0.014	2.72	0.12
Group	0.028	1	0.028	5.54	**0.03***
Error	0.066	13	0.005		
Corrected Total	0.114	15			

*significant at 0.05 level

Table 5 shows the F- value for Pre is insignificant as p-value (0.12) is greater than 0.05. It shows that the initial conditions of both the groups are same.

The f- value for comparing the adjusted means of the two groups (experimental and control group) during post testing. Since p-value of statistics is 0.03 which is less than 0.05, it is significant. Thus the null hypothesis of no difference among the post means of the data on time movement anticipation of both groups may be rejected at 5% level

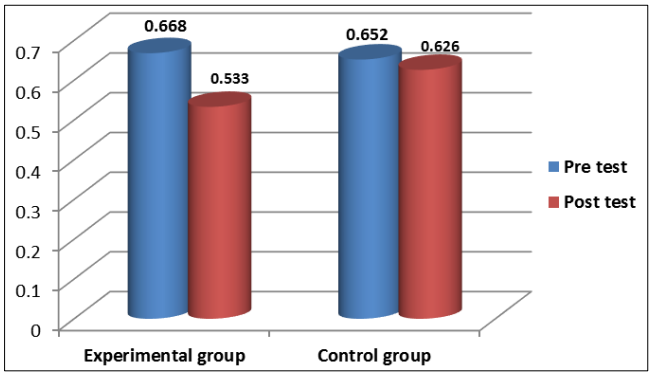

Fig 2: Graphical representation of pre-test scores and post-test score of mean Time Movement Anticipation

4. Discussion and Findings

From the above results it may be concluded that coordination training of 8-week is effective to improve time movement anticipation. Time movement anticipation showed significant results. So form this it is inferred that if we provide 8-week Coordination training to young cricketer than there would be significant improvement in their time movement anticipation. Anticipation plays a major role in sports with an opponent as it enables the athletes to predict and respond accurately to a fast and dynamic target. Preliminary work on anticipation timing suggested that anticipation tends to be earlier when there is slower velocity of response and later when the velocity becomes faster (Coker, 2005; Williams, 2000) [2, 8]. Vision plays a fundamental role in athlete's performance especially in areas of visual search, selective attention, and anticipation (Kluka, 1999) [4]. Studies have suggested that improvements in anticipation ability can be obtained from visual training using the temporal occlusion method with the use of vision occlusion spectacles (Farrow & Abernethy, 2002; Müller & Abernethy, 2014) [3, 5].

5. References

1. Ackerman P, Cianciolo A. Cognitive, perceptual-speed, and psychomotor determinants of individual differences during skill acquisition. Journal Of Experimental Psychology: Applied. 2000; 6(4):259-290. http://dx.doi.org/10.1037//1076-898x.6.4.259
2. Coker C. Influence of bassin anticipation timer stimulus presentation methods. Paper presented at the Research quarterly for exercise and sport, 2005.
3. Farrow D, Abernethy B. Can anticipatory skills be learned through implicit video based perceptual training? Journal of Sports Sciences. 2002; 20(6):471-485.
4. Kluka DA. Motor behavior: From learning to performance: Morton, 1999.
5. Müller S, Abernethy B. An expertise approach to training anticipation using temporal occlusion in a natural skill setting. Technology, Instruction, Cognition and Learning. 2014; 9:295-312.
6. Piras A, Lobietti R, Squatrito S. Response Time, Visual Search Strategy, and Anticipatory Skills in Volleyball Players. Journal of Ophthalmology. 2014, 1-10. http://dx.doi.org/10.1155/2014/189268
7. Schmidt R. Anticipation and timing in human motor performance. Psychological Bulletin. 1968; 70(6, Pt.1), 631-646. http://dx.doi.org/10.1037/h0026740
8. Williams AM. Perceptual skill in soccer: Implications for talent identification and development. Journal of Sports Sciences. 2000; 18(9):737-750.