# Combined and Individualized Effect of Traditional Training and Visual Training at Altitude on Selected Fitness Variables of School Level Football Players

**Anish Babu, P.V[1], Dr.P.J. Sebastian[2]**

[1]Ph.D., Research Scholar, Faculty of General and Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda University, Coimbatore. Tamilnadu, India.
[2]Professor, Faculty of General and Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda University, Coimbatore. Tamilnadu, India.

## Abstract

The purpose of the study is to find out the combined and individualized effect of traditional training and visual training at altitude on selected motor fitness variables of school level football players. One hundred and twenty male inter-school football players studying in various school in munnar, Kerala state, in India were randomly selected as subjects. The range of the age of the players used as subjects in the present study was between12 and 15 years. The selected subjects were divided into four equal groups consisting of fifteen in each. Experimental group 'A' underwent traditional training programme and Experimental group 'B' underwent visual training programme, Experimental group 'C' underwent combination training programme and group 'D' called as control group for a period of twelve weeks. The control group was not exposed to any specific training apart from their regular routine. All the subjects were tested on selected variables, before and after the treatment. They have high potential and greater ability in football. The researcher proposed to collect data from these subjects as the scores would be more applicable to the study. The following physical fitness variables like speed and agility were selected as the variables. The collected data were statistically analysed by using analysis of covariance. The scheffe's test was used as a post hoc test to determine which of the paired means differ significantly. The result reveals that there is a significant difference between the experimental groups and the control group on the selected motor fitness variables.

**Keywords:** Individualized, Traditional Training, Visual Training, Kalari, Fitness.

## Introduction

Sports training is a scientifically based and pedagogically organised process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition **(Thiess and Schnabel, 1986).** Sports training are a conscious human activity; also it is a goal oriented activity. Sports training tries to study the effect of training on sports performance and to use it for better training and for better preparation of sports person for competitions. It is a basic form of preparation of sports person for a particular goal. It is based on the scientific knowledge, and it's a planned and controlled process .Sports training is a process of preparing of a person for improving his/her performance through various methods not only through physical exercises. Sports' training also fulfils an important didactical task for the professional preparation of coaches and players. Sports training are important not only in performance sports, its equally important for the various other areas of training because sports training are considered towards the development of fitness and health also.

The traditional training can be defined as a long established custom followed by the society of by the coaches to teach/train the sports. The world traditional training can be explained as a system of training that is already implemented and followed by coaches or Physical education teachers to train sports. There are various traditional methods are available in the world some of them are circuit training, interval training, flat leg training etcetera. These training methods are widely used by coaches to train players. For team training or specific training coaches develop their own modules or training plans by following the basic principles of sports training. So these are also can be called as traditional training because they follow almost same Pattern on the basic of sports training principles.

Traditionally we are following various training methods to train the various sports. The major traditional sports fitness training methods are, Circuit training, Interval training, Fartlek training and Weight training. Indian sports and games have got a rich culture and heritage. Combat sports events namely Kalari and wrestling (Indian style) were the major sports in India.

**Correspondence**
Anish Babu, P.V,
E-mail: mranishbabu@gmail.com, Ph: +9194471 47530

We were following traditional methods for training those events. As far as the modern sports training and coaching in India is concerned the Netaji Subhas National Institute of sports, Patiala is playing a major role. Netaji Subhas National Institute of sports contributed tremendously towards the establishment and development of Sports performance in India by creating a separate department of Sports training .The coaches and trainers from the institute are following a system of training which they have mastered during their training. So that can be considered as a traditional method of coaching sports in India.

In soccer training the coaches and trainer follow various methods, they may follow the system already been developed by some on or they will develop a system based on the sports training principles. Most of the traditional training methods in India are a kind of combination of various training methods. It includes fitness, skill and playing ability oriented training method. The purpose of the study is to find out the combined and individualized effect of traditional training and visual training at high altitude on selected motor fitness variables of school level football players.

## Methodology

The purpose of the study is to find out the combined and individualized effect of traditional training and visual training at high altitude on selected fitness variables of school level football players. One hundred and twenty male inter-school football players studying in various school in Munnar, Kerala state, in India were randomly selected as subjects. The range of the age of the players used as subjects in the present study was between12 and 15 years.  All the subjects have been participating in the Inter-school, Inter-District and District league and other tournaments in their respective centres. The Inter-School players were well-versed in the skills of the game. The selected subjects were divided into four equal groups consisting of fifteen in each. Experimental group 'A' underwent traditional training programme and Experimental group 'B' underwent visual training programme, Experimental group 'C' underwent combination training programme and group 'D' called as control group for a period of twelve weeks. The control group was not exposed to any specific training apart from their regular routine. All the subjects were tested on selected variables, before and after the treatment. They have high potential and greater ability in football. The researcher proposed to collect data from these subjects as the scores would be more applicable to the study. The following physical fitness variables like speed and agility were selected as the variables. The following standardized tests were used to measure the physical fitness variables namely, speed was measured by 50 dash test and agility was measured by $4 \times 10$ shuttle run test. In the present study the data were analysed in two parts.  (a) in order to analysis the training effects of each group on selected motor fitness variables "t" ratio was used. (b) In order compare the effect of treatment on selected motor fitness variables among the four groups, analysis of covariance was used. Whenever, the 'F' ratio for adjusted post-test was found to be significant to determine which of the three paired means significantly differed, the Scheffe's test was applied. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypothesis.

## Results and Discussion

**Table I.** Significance of mean gains / losses between pre test and post test on selected variables of traditional training group

| S.No | Variables | Pre test Mean (±SD) | Post test Mean (±SD) | MD | SE | 't' ratio |
|---|---|---|---|---|---|---|
| 1 | Speed | 8.14 (0.30) | 8.06 (0.28) | 0.07 | 0.03 | 3.00* |
| 2 | Agility | 9.86 (0.62) | 9.65 (0.62) | 0.21 | 0.69 | 3.14* |

An examination of table – I indicates that the obtained 't' ratio are 3.00 and 3.14 for speed and agility respectively. The obtained 't' ratio on the selected variables are found to be greater than the required table value of 2.04 at 0.05 level of significance for 29 degrees of freedom. So it is found to be significant.

**Table II.** Significance of mean gains / losses between pre test and post test on selected variables of visual training group

| S.No | Variables | Pre test Mean (±SD) | Post test Mean (±SD) | MD | SE | 't' ratio |
|------|-----------|---------------------|----------------------|------|------|-----------|
| 1 | Speed | 8.26 (0.34) | 8.1433 (0.45) | 0.12 | 0.04 | 2.98* |
| 2 | Agility | 9.69 (0.49) | 9.34 (0.59) | 0.35 | 0.96 | 3.67* |

An examination of table – II indicates that the obtained 't' ratio are 2.98 and 3.67 for speed and agility respectively. The obtained 't' ratio on the selected variables are found to be greater than the required table value of 2.04 at 0.05 level of significance for 29 degrees of freedom. So it is found to be significant.

**Table III.** Significance of mean gains / losses between pre test and post test on selected variables of combination group

| S.No | Variables | Pre test Mean (±SD) | Post test Mean (±SD) | MD | SE | 't' ratio |
|------|-----------|---------------------|----------------------|------|------|-----------|
| 1 | Speed | 8.11 (0.57) | 7.70 (0.75) | 0.41 | 0.12 | 3.41* |
| 2 | Agility | 9.97 (0.63) | 8.86 (0.57) | 1.11 | 0.18 | 6.09* |

An examination of table – III indicates that the obtained 't' ratio are 3.41 and 6.09 for speed and agility respectively. The obtained 't' ratio on the selected variables are found to be greater than the required table value of 2.04 at 0.05 level of significance for 29 degrees of freedom. So it is found to be significant.

**Table IV.** Significance of mean gains / losses between pre test and post test on selected variables of control group

| S.No | Variables | Pre test Mean (±SD) | Post test Mean (±SD) | MD | SE | 't' ratio |
|------|-----------|---------------------|----------------------|------|------|-----------|
| 1 | Speed | 8.30 (0.44) | 8.34 (0.45) | 0.04 | 0.02 | 1.52 |
| 2 | Agility | 9.76 (0.58) | 9.63 (0.68) | 0.12 | 0.09 | 1.38 |

An examination of table – IV indicates that the obtained 't' ratio are 1.52 and 1.38 for speed and agility respectively. The obtained 't' ratio on the selected variables are found to be lesser than the required table value of 2.04 at 0.05 level of significance for 29 degrees of freedom. So it is found to be not significant.

**Table V.** Analysis of covariance for the pre test post test and adjusted post test means on speed of experimental and control groups

| Test | Experimental Group-'A' (Seconds) | Experimental Group-'B' (Seconds) | Experimental Group-'C' (Seconds) | Control Group (Seconds) | Source of variance | Sum of square | df | Mean square | 'F' ratio |
|---|---|---|---|---|---|---|---|---|---|
| **Pretest Mean SD(±)** | 8.14 (0.30) | 8.26 (0.34) | 8.11 (0.57) | 8.30 (0.44) | B.M | 0.803 | 3 | 0.268 | 1.45 |
| | | | | | W.G | 21.332 | 116 | 0.184 | |
| **Post test Mean SD(±)** | 8.06 (0.28) | 8.14 (0.45) | 7.70 (0.75) | 8.34 (0.45) | B.M | 6.528 | 3 | 2.176 | 8.20* |
| | | | | | W.G | 30.808 | 116 | 0.266 | |
| **Adjusted Post test Mean** | 8.12 | 8.09 | 7.78 | 8.22 | B.S | 3.117 | 3 | 1.039 | 8.38* |
| | | | | | W.S | 14.255 | 115 | 0.124 | |

**B.M. –Between means    W.G. – Within groups    B.S. – Between sets  W.S. – Within sets**    *Significant at 0.05 level of confidence.*
*(The table values required for significance at 0.05 level of confidence for 3 & 116 and 3 & 115 are 2.68 and 2.68 respectively).*

Table – V shows that the pre-test mean values on speed of traditional training group, visual training group, combination training group and control group are 8.14, 8.26, 8.11 and 8.30 respectively. The obtained 'F' ratio 1.45 for pre-test scores is less than the table value 2.68 for df 3 and 116 required for significance at 0.05 level of confidence on speed. The post-test mean values on speed of traditional training group, visual training group, combination training group and control group are 8.06, 8.14, 7.70 and 8.34 respectively. The obtained 'F' ratio 8.20 for post-test scores is greater than the table value 2.68 for df 3 and 116 required for

significance at 0.05 level of confidence on speed. The adjusted post-test means of traditional training group, visual training group, combination training group and control group are 8.12, 8.09, 7.78 and 8.22 respectively. The obtained 'F' ratio of 8.38 for adjusted post-test means is greater than the table value of 2.68 for df 3 and 115 required for significance at 0.05 level of confidence on speed. The results of the study indicated that there is a significant difference among the adjusted post-test means of traditional training group, visual training group, combination training group and control group on speed.

**Table VI.** Scheffe's test for the difference between paired means on speed

| Experimental Group-'A' (*Traditional training group*) | Experimental Group-'B' (*Visual training group*) | Experimental Group-'B' (*Combination training group*) | Control Group | Mean Difference | Required C.I |
|---|---|---|---|---|---|
| 8.12 | 8.09 | -- | -- | 0.03 | |
| 8.12 | -- | 7.78 | -- | 0.34* | |
| 8.12 | -- | -- | 8.22 | 0.01 | 0.24 |
| -- | 8.09 | 7.78 | -- | 0.31* | |
| -- | 8.09 | -- | 8.22 | 0.13 | |
| -- | -- | 7.78 | 8.22 | 0.44* | |

*Significant at 0.05 level of confidence.*

Table VI shows that the mean difference values between traditional training group and visual training group; traditional training group and combination group: traditional training group and control group, visual training group and combination training group, visual training group and control group and between

combination training group and control group are 0.03, 0.34, 0.01, 0.31, 0.13 and 0.44 respectively. It may be concluded from the results that there is a significant difference between adjusted post test means among the experimental groups and control group. The results of the study show that there is a significant difference

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between traditional training group, combination training group; visual training and combination training group and combination training group control group on speed. The pre test, post test and adjusted post test means values of traditional training group, visual training group, combination training group and control group on speed are graphically represented in the Figure – 1.

**Figure 1.** Adjusted post test mean values of traditional training group visual training group combination training group and control group on speed
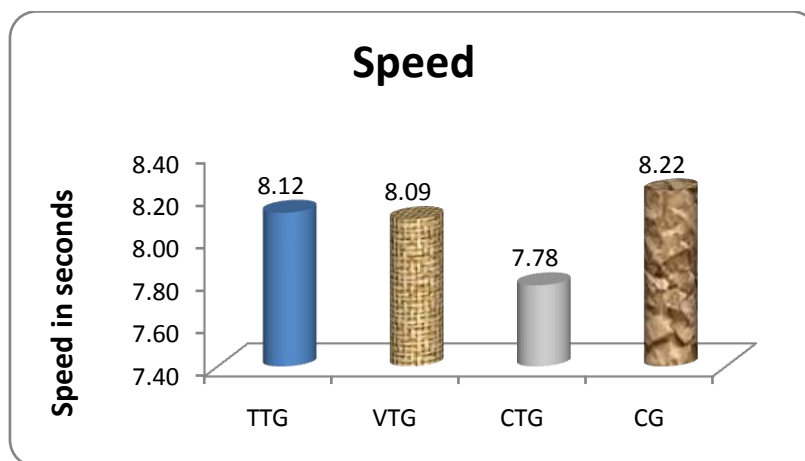


**Table VI.** Analysis of covariance for the pre test post test and adjusted post test mean on agility of experimental and control groups

| Test | Experimental Group-'A' (Seconds) | Experimental Group-'B' (Seconds) | Experimental Group-'C' (Seconds) | Control Group (Seconds) | Source of variance | Sum of square | df | Mean square | 'F' ratio |
|---|---|---|---|---|---|---|---|---|---|
| **Pretest Mean SD(±)** | 9.86 (0.62) | 9.69 (0.49) | 9.97 (0.63) | 9.97 (0.58) | B.M | 1.33 | 3 | 0.44 | 0.29 |
| | | | | | W.G | 40.23 | 116 | 0.35 | |
| **Post test Mean SD(±)** | 9.65 (0.62) | 9.34 (0.60) | 8.86 (0.56) | 9.63 (0.68) | B.M | 12.44 | 3 | 4.14 | 10.85* |
| | | | | | W.G | 44.35 | 116 | 0.38 | |
| **Adjusted Post test Mean** | 9.63 | 9.40 | 8.79 | 9.66 | B.S | 14.59 | 3 | 4.86 | 15.47* |
| | | | | | W.S | 36.16 | 115 | 0.31 | |

**B.M. –Between means   W.G. – Within groups   B.S. – Between sets   W.S. – Within sets   ***Significant at 0.05 level of confidence.*
*(The table values required for significance at 0.05 level of confidence for 3 & 116 and 3 & 115 are* 2.68 *and* 2.68 *respectively).*

Table – VI shows that the pre-test mean values on agility of traditional training group, visual training group, combination training group and control group are 9.86, 9.69, 9.97 and 9.97 respectively. The obtained 'F' ratio 0.29 for pre-test scores is less than the table value 2.68 for df 3 and 116 required for significance at 0.05 level of confidence on agility. The post-test mean values on agility of traditional training group, visual training group, combination training group and control group are 9.65, 9.34, 8.86 and 9.35 respectively. The obtained 'F' ratio 10.85 for post-test scores is greater than the table value 2.68 for df 3 and 116 required for significance at 0.05 level of confidence on agility. The adjusted post-test means of traditional training group, visual training group, combination training group and control group are 9.63, 9.40, 8.79 and 9.66 respectively. The obtained 'F' ratio of 15.47 for adjusted post-test means is greater than the table value of 2.68 for df 3

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and 115 required for significance at 0.05 level of confidence on agility. The results of the study indicated that there is a significant difference among the adjusted

post-test means of traditional training group, visual training group, combination training group and control group on agility.

**Table VII.** Scheffe's test for the difference between paired means on agility

| Experimental Group-'A' (Traditional training group) | Experimental Group-'B' (Visual training group) | Experimental Group-'B' (Combination training group) | Control Group | Mean Difference | Required C.I |
|---|---|---|---|---|---|
| 9.63 | 9.40 | -- | -- | 0.23 | |
| 9.63 | -- | 8.79 | -- | 0.84* | |
| 9.63 | -- | -- | 9.66 | 0.03 | 0.39 |
| -- | 9.40 | 8.79 | -- | 0.61* | |
| -- | 9.40 | -- | 9.66 | 0.26 | |
| -- | -- | 8.79 | 9.66 | 0.87* | |

*Significant at 0.05 level of confidence.*

Table – VII shows that the mean difference values between traditional training group and visual training group; traditional training group and combination group: traditional training group and control group, visual training group and combination training group, visual training group and control group; and between combination training group and control group are 0.23, 0.84, 0.03, 0.61, 0.26 and 0.87 respectively. It may be concluded from the results that there is significant difference between adjusted post means of

experimental group 'A' 'B', 'C' and control group. The results of the study show that there is a significant difference between traditional training group and combined training group; visual training group and combined group; combined training group and control group on agility. The pre test, post test and adjusted post test means values traditional training group, visual training group, combination training group and control group on agility are graphically represented in the Figure – 2.
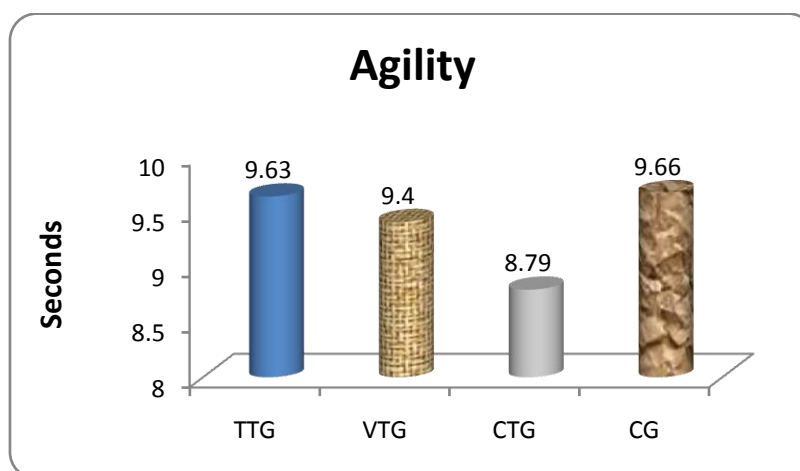


**Figure 2.** Adjusted post test mean values of traditional training group visual training group combination training group and control group on agility

### Discussion on Findings

The prime intention of the researcher is to analyse the traditional training, visual training and combination training at high altitude on selected fitness variables of school level football players. The results of the study indicated that the experimental groups namely traditional training group, visual training group, combination training group had significantly influenced on fitness variables namely speed and agility as both experimental groups had undergone systematic training

over 12 weeks duration. The control group had not shown significant improvement on any of the selected variables as they have not subjected to any of the specific training/conditioning similar to that of experimental groups. Hence it is understood that the selected training means had influenced on the criterion variables. The results of the study indicate that the traditional training group, visual training group, combination training group showed significant improvement in performance level in all the selected

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fitness variables when compared with control group. Hence, twelve weeks of traditional training group, visual training group, combination training group showed considerable improvement in speed and agility of football players in experimental groups. At the same time when the three experimental groups were compared, combination of training group showed better performance than the other two training group. Hence, combined training group have influenced performance level of football players. The results of the study are in conformity with the findings of Guan and Koceja (2011), Lelard, T., et. al (2010), Arai, T., et al (2008), Ko T., et al, (2006), Hui, S. S., et al (1999) Liang and Cameron(1999)

**Conclusions**

From the analysis of the data, the following conclusions are drawn,

1. The traditional training, visual training and the combination training groups had shown a significant improvement in all the selected fitness variables of male football players.
2. The control group had not shown significant changes in all the selected fitness variable of male football players.
3. The results of the study showed that there is a significant difference among the adjusted post test means of the experimental groups in the selected fitness variable of male football players.
4. The results of the study showed that the combination of traditional training and visual training group is better than the visual training group, traditional training and control groups in the selected fitness variable of male football players. The results indicate that the improvement in all the selected variables is due to the impact of combination training programme.
5. The results of the study showed that the visual training group is better than the traditional training group and control group in the selected fitness variable of male football players. The results indicate that the improvement in all selected variables is due to the impact of visual training programme.
6. The results of the study showed that the traditional training group is better than the control group in the selected fitness variable of male football players. The results indicate that the improvement in all selected variables is due to the impact of traditional training programme.

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