

# Training Response to Speed Employing Designed Yogic Practices and Physical Exercises

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## Abstract

Selected Yogic practices and Physical exercises were applied as training methods on two different experimental groups of male students with a control group of equal number for a period of three months for training significance on speed. The status of speed of all the three groups was measured through the administration of 50 Meters run test before and after the training period. The obtained pre and post test scores were analyzed through Analysis of covariance (ANCOVA) for statistical significance. Scheffee's Post hoc-test was applied to find out the better group among the three. The statistical significance detected on physical exercise group 6.4640 over the control group 7.4150 and yogic practices group 7.2450 reveals a significant difference between the scores of pre and post treatment. The significant difference of physical exercise group over the yogic practices and control group was due to the designed capsule of physical exercises underwent by the physical exercise group (Group-B) for a period of three months. The result proves that the designed physical exercise package has made a significant impact on the speed of the physical exercise group compared to the other two groups.

**Key words:** Yogic Practices, Physical Exercises.

## Introduction

Science claims that the physiological functions of the body improve with the use and decline with disuse. More specifically, the heart, lungs and muscles become stronger and more durable the more they are used. The person who exercises regularly has a lower pulse rate and this rate returns to normal more quickly after exercise than does the pulse rate of the sedentary person. Exercise help player's lungs, circulatory system to perform more efficiently and develop greater physical and physiological needs required of any sporting activity. Heart which is a muscular tissue, increases in strength and can pump more blood through this system in fewer beats per minute. The science of yoga proclaims that yogic techniques and practices aim at selective as well as wholesome shaping of human body and mind. Hence a selective package of yogic practices consisting Asana (Physical Postures), Pranayama (Breathing Practices) and Meditation (Mental Practices) (Capsule - I) was designed with performance norms intended to create a positive impacts among the experimental subject on speed. Similarly a package of physical exercises (Capsule - II) was also designed with balanced workload equivalent to yogic practices intended for positive impacts on speed. The capsule I and II is expected to assist the enhancement of physical and physiological fitness so as to suit the tested variable. The degree and range of impacts of the capsules subjected to statistical analysis is the culmination of the research challenge.

## **Yoga**

The term 'yoga' is used to indicate both the 'End' as well as the 'mean'. In the sense of the 'End', the word 'Yoga' signifies 'Integration' at its highest level. All the means that subscribe to reach this goal also constitute yoga, in the sense of 'yukti' the means or technique. All practices, whether high or low, that are calculated to help the progress of the aspirant towards such an integration are together known by the name 'yoga'. Yoga is thus an integral subject, which takes into consideration man as a whole. It does not divide him into watertight compartment as body, mind and spirit etc.

## **Asana**

Asana are those postures with dynamic moments oriented to create physical and physiological changes in the human system. Local compression of various structures affects the whole body during flexing and extending which in turn tunes the tissues locally so as to stimulate nerves, blood, lymph, endocrine organs and neural plexus. Thus the wide range of posturing, improving suppleness and flexibility in the body are achieved particularly toning up the nervous system. Functions of all vital organs, stimulation of glands and regulation of the blood flow are achieved by proper postures and the muscles in our body are thus firmed and strengthened.

## **Pranayama**

Pranayama is the practice of breathing exercises with the three scientific phases namely Puraka (Inhalation), *Kumbhaka* (Holding the air in the lungs) and *Rechaka* (Exhalation) in a progressive manner that works centrally and the effects spread to the periphery, too. One must understand that the objective of pranayama is to affect the proper balance between Ida (Moon Breath) and Pingala (Sun Breath) nadis and to gain the physiological, spiritual upliftment through the attainment of light and knowledge from the Sushumna nadi. From the physical point of view, a proper balance among the nadis ensures health, strength, peace and longevity. During practice the three phases, inhalation, holding the breath and exhalation should be observed as 1:1:1 (Initial Stage) 1:2:2 (Intermediate Stage) and 1:4:2 (Advanced Stage).

## **Meditation**

Meditation is a systematic method of mental practice that gives a complete mental, physical and emotional relaxation (Iyengar B.K.S, 2001).

## **Physical Exercises**

Exercises from the practical point of view may be formulated as "any bodily exertion for the sake of keeping the organs and their functions in a healthy state". Exercise comprises all movements designed to act on the muscles, the blood vessels, the nervous system, the skin and the abdominal organs.

### **Capsule Training Package**

The Scientific basis of yoga and physical exercises offers a wide range of variations in its scopes and benefits on how to utilize those effects for various needs and requirements of general health and fitness more specifically in sports performance. An intensive review of related literature on these area and consultations with the experts in yoga and sports, a selected yoga-training package and a physical exercise package was designed for the subjects under study. The principle of training load was maintained for both the capsule packages during the experimentation in terms of physical and physiological requirements for the training period.

### **Purpose of the Study**

To assess the post training effect of designed yogic practices and physical exercises on speed among the residential male college students.

### **Hypothesis**

Significant difference would appear between pre-test and post-test scores and Physical exercise group likely to have greater statistical significance in comparison between all the groups.

### **Materials and Methods**

For this study sixty residential male college students were selected at random and were divided into three groups of twenty each namely group A group B and group C. The experimental group A underwent a designed yogic practices training for three months and similarly the group B was treated with designed physical exercises. The group C was a control group. The status of speed of all the groups was measured through the administration of 50 Meters run test and was recorded as the initial scores. During the administration of the test the subjects take their position behind the starting line. The starter used the command "Ready" and blew the whistle. The latter was accompanied by a downward sweep of the starter's arm as a signal to the timer. On hearing the whistle sound, the subjects started running as fast as possible up to the finishing line. The score is the elapsed time to the largest one tenth of a second between the starting and the instant the subject crosses the finish line. The same test was administered after three months of respective training and was recorded as the post test scores. The obtained pre and post test were analyzed by using Analysis of covariance (ANCOVA) for statistical significance. Scheffee's Post hoc-test was applied to find out the better group among the three (Herold M. barrow and Mc Gee, 1979).

## Designed Training Capsule

### Capsule – I / Designed Yogic Practices (Group-A)

**Asana** - Padmasana, Vajrasana, Paschimothanasana, Matsyasana, ArthaMatsyendrasana, Halasana, Bhujangasana, Dhanurasana, Shalabhasana, Sarvangasana, Pawanmuktanasana, Chakrasana, UtthitaParvakonasana, Virabhadrasana, Utkatasana, Vrksasana, Tadasana, Garudasana, Shavasana .

**Pranayama** - Nadisuddhi, Nadi Shodhana, Ujjayi, Kapalabhati, Bhramari, Bhastrika, Sitalai, Sitakari

**Meditation** - Observing the breath (Swami Satyananda Saraswathi, 1993)

### Capsule – II / Designed Physical Exercises (Group-B)

Slow continuous running, Medium phase running, Shot and easy running, Fartleks, Tempo runs, Endurance running (Slow) Explosive running, Skipping, Spilt jumps, Shuttle run, Hopping, Short sprints, Accelerated running, Static and dynamic stretching, Accelerated drills, Striding, L-drills, Side shuffle, Wind sprint, Sprint drills, Falling acceleration, T-Drills, Zig – Zag drill, Four corner drill, Squat jump, Four counts jumping jacks, Step up Jump (8' – 10'), Speed endurance. (Dr. Jay Hoffman, 2002)

**Table - I**

### Common Training Schedule

*(Experimental groups alone)*

Sl.No.	Description	Period
1	Training duration	3 Months
2	Days	6 days (Monday to Saturday)
3	Training session per day	1 Session (Morn&Even, alternatively)
4	Duration of session	90 Minutes
5	Preparation / Warm-up	15 Minutes
6	Specific Training parameter	45 Minutes
7	Distributed rests	15 Minutes ( as required )
8	Relaxation / Warm-down	15 Minutes
<b>Total</b>		<b>90 Minutes Capsule</b>

## Analysis and Findings

Analysis of Co-variance (ANCOVA) was applied for computation where, the final means are adjusted for differences with initial means. The adjusted means of yogic practice, physical exercise and control group on speed was tested for statistical significance. The level of numerical difference offers a solution for the stated research challenge.

**Table - II**  
**Result of Analysis of Co-Variance on Speed**

Test	Group Means			Sum of Squares	Df	MSs	F-ratio	Signf.
	Control Group	Yoga Group	Phy. Ex Group					
Pre-test	7.39	7.2650	7.32	B : 0.157	2	0.078	0.211	0.810
				W : 1.175	57	0.371		
Post-test	7.3150	7.0450	6.4600	B : 7.641	2	3.821	12.456	0.000
				W : 7.483	57	0.307		
Adj-Post	7.4150	7.2450	6.4640	B : 7.041	2	3.520	160	0.000
				W : 1.232	56	2.200		

**B** : Between Groups

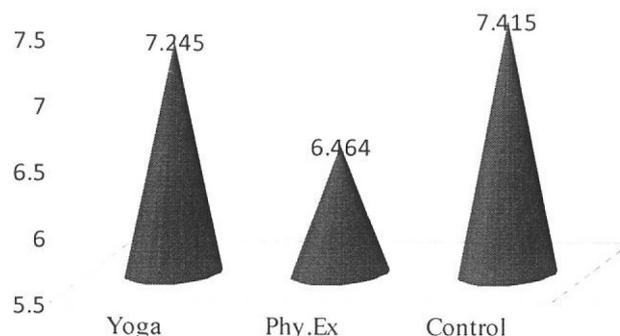
**W** : Within Groups

From the above table, the pre-test mean speed of the three groups were statistically insignificant ( $P > 0.05$ ). The post-test mean speed of the three groups differs significantly ( $P < 0.001$ ). The adjusted post-test for mean speed of the three groups done by ANCOVA showed that the mean speed differed significantly high among the three groups ( $P < 0.001$ ) and the results of Post-hoc test reveals that physical exercise group (Group - B) is the better among the three groups with 6.4640 (Minimal seconds required for completing the race) statistical significance.

**Table-III**  
**Result of Scheffe's Post - hoc Test on Speed**

Group	N	Subset for Alpha = 0.05	
		1	2
Physical Exercise	20	6.4640	
Yogic Practices	20		7.2450
Control Group	20		7.4150
Significance		1.000	0.606

**Figure-1**  
**Result of Scheffe's Post - hoc Test on Speed**



The statistical significance detected on Physical exercise group – 6.4640 over the Control group – 7.4150 and Yogic practices group – 7.2450 reveals significant difference between the scores of before and after treatment. The significant difference of group B over the group A and group C is due to the specific capsule training undergone by the group-B for a period of three months. The obtained statistical significance of physical exercise group over the yogic practices and the control group proves that the designed physical exercise package has made a significant impact on the speed compared to the other two groups. The above finding is supported by the earlier study done by; Harvey K. Campney (1965).

### **Conclusion**

The designed yogic practices and physical exercises made impacts on speed during post training assessment among the residential male college students. Statistically the physical exercise group has proved a better significance than the other two groups. Based on the finding, it is concluded that the designed physical exercise package could be of a notable capsule training to maintain and develop a positive speed parameter for performance oriented tasks in sports and other related physical variables in general.

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