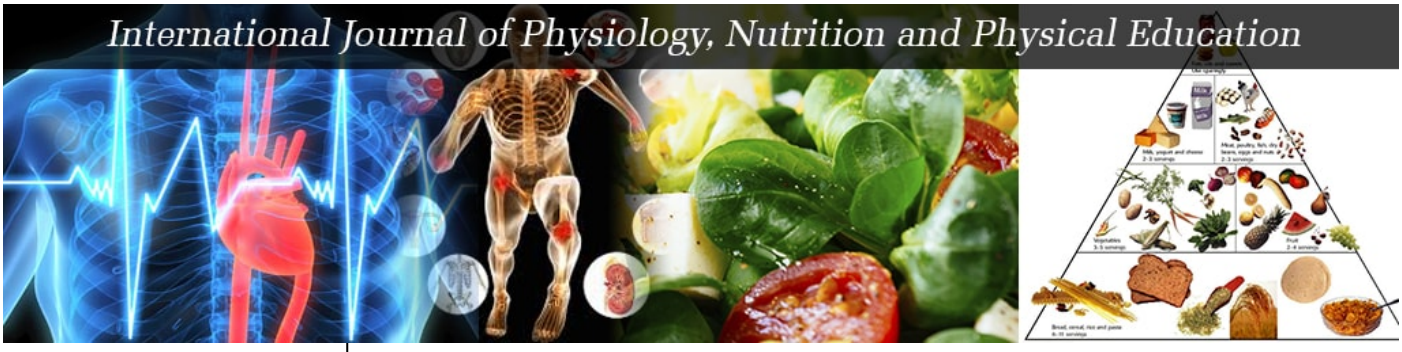

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Effect of 8 weeks kapalbhati intervention on balance ability of senior cricket players

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Abstract
The goal of the research was to determine how Kapalbhati of Yoga affected a cricket player's ability to balance. Balance ability was regarded as the dependent variable, while kapalbhati was regarded as the independent variable. The Long Nose Test measures balance skills and records results in seconds. The study's design was a random group one. Twenty participants each were divided into two groups. These participants gave their free will to the investigation. While the other individuals were retained in the control group (N = 20), the subjects who had learned and practiced Kapalbhati were kept in the experimental group (N = 20). Pre-test and post-test data on balance ability were submitted to the following statistical analysis to determine the treatment's effects on the experimental group. ANCOVA (Analysis of Co-Variance) was used to analyse the pre- and post-test results after two months (eight weeks) of therapy to determine the impact of Kapalbhati on cricket players' balance abilities. Additionally, a graphical presentation was created for quick reference comparison, and mean values for each parameter in relation to the pre- and post-test were highlighted. It was determined that Kapalbhati should be included in cricket players' training regimens since it helps to improve their ability to balance.

Keywords: Yoga, kapalbhati, balance ability, cricket and ANCOVA

Introduction
Pranayama is part of Yoga sadhana. Pranayama is formed from Prana and Ayama in Sanskrit. Prana supplies energy to organs, the intellect, and many important life functions. Ayama denotes growth and control. Traditional scripture emphasises Pranayama. Pranayama is a yogic method for controlling Prana. Pranayama constitutes fourth step of eight fold of Yoga described in the Patanjaliyogasutra [1] and occupies second place in Hathapradipika and fifth place in Gherandasamhita [2]. According to Patanjaliyogasutra, Pranayama is a cessation of the movement of inhalation and exhalation (PYS) [2].
Kapalbhati means forehead shine (or face). Regular kapalbhati practice will brighten one's face. Sitting in any comfortable meditation stance with palms on knees, fingers touching thumbs, inhale deeply to expand the abdomen. After exhaling, contract the abdomen. Keep the abdomen tight to hold exhaled air as long as possible. Keep chest and shoulders motionless. This may be performed 100 times or 15-20 minutes. One shouldn't do more than 20-25 reps at first. It may be done in stages while resting. Few yoga instructors recommend stomach breathing. Inhaling lowers the diaphragm, which helps blow out the abdomen. Kapalbhati involves repeatedly exhaling without inhaling. Unwillingly, people breathe. Kapalbhati clears sinuses, strengthens adenoids, and activates the medullata. After pranayam, it's the following phase. Yoga's kandha organ situated four fingers below the neck.
In yoga, 72,000 naries are said to derive from it. By energizing its 72,000 naries, kandh sanchalan helps awaken the kundalni in the muladhar, between the anus and scrotum. In kaplalbhati, the stomach doesn't move. It stimulates the forehead, sinuses, ear, eyes, and palate (gyanindriyas). Kandh sanchalan is a kind of agnisar and nauli kriya. What's prescribed here is Kapalbhati and Kandh sanchalan. Patients with heart illness, high blood pressure, hernia, or gastriculcer should not do Kapalbhati. Men's lives are busy. His single action is the consequence of body and mind working together. Individual achievement increases with combined efforts. Thing in this world outside ourselves comes via the body (sense organs) in to our mind and things in our mind reach the world outside through the body [3].

Technical sports need well-developed technical abilities and coordination to produce elegant motions. Coordination skills dictate the maximum limits of athletic performance improvement in many sports, particularly those that rely heavily on technical and tactical factors2. Today, physical educators and coaches have their biggest obstacle in managing problems scientifically, that is, providing progressive instructions based on scientific methodology that lead to desired outcomes. Over the years, different ways have been established to improve physical strength, speed, and other components, which proved effective, but mental activity regulation, i.e. integrated efforts, remains a mystery.

In India, coaches and PE teachers use common training approaches. Training without considering its impact. Coaches and PE teachers sometimes fail to detect the training property, which hinders performance.

Once, "cricket is a pastime" was said. No longer sluggish and boring. The Perfumed harlot is a fancy phrase for limited-over cricket. One-day games need physical agility. It's beautiful to watch fielders moving quickly. A good catch, precise throw, catching the scrambling batsman out of his crease, an angosing misfield that takes away runs the side can't afford, or a wonderful try that yet sees the ball pop out of frantic hands to give the delighted batsman the run he craves somehow may turn the game around.

There are various department in Cricket i.e. Batting, Bowling, fielding and no other takes precedence over the other, they are all of course of equal importance. As science has improved, so have sports practices and training, and this has affected cricket, notably bowling and fielding. Great cricket players, coaches, and analysts say fielding should be prioritized. Tony Greig has written that “a side which never drops a catch never looses a match” [4].

Physical qualities of a sport modality contribute to its performance and allow coaches and scientists to notice distinctions among players of other modalities. Physical (general and particular circumstances), psychological (personality and motivation), anthropometrical (body morphology, anthropometry, and body composition), and biomechanical aspects affect sports performance.

Coordination is important to maximize conditional, technical, and tactical capabilities. A sportsman can't maximize his psycho-biological powers and reserves without well-developed coordination. Coordination abilities determine the maximum limits of sports performance improvement in many sports, especially those that rely heavily on technical and tactical factors. Coordination evaluation and growth potential are key in identifying athletic talent.

Balance ability is one of the seven coordinative abilities, and it is one of the abilities that is highly important for cricket players to have. The capacity to maintain balance during whole-body motions and swiftly restore equilibrium after movements that upset balance is known as balancing ability. There are two sorts of balance abilities. One is the capacity to keep one's balance when standing still or moving slowly (static balance). It largely relies on the kinesthetic, tactile, and to a lesser degree, vestibular senses. The capacity to keep or restore equilibrium during movements over a wide range and while the body is changing positions quickly. It mostly relies on the vestibular sense organs' ability to operate. The research examined the effects of Kapalbhati intervention on cricket players’ balance ability.

Methodology

Selection of subject & study design

The random group design was used for the study. Two groups were made, each comprising of twenty subjects. These subjects participated voluntarily in the study. The subjects who learned and practiced Kapalbhati were kept in the experimental group (N = 20) and the other subject were kept in control group (N = 20). The age of subjects was 18 to 25 years.

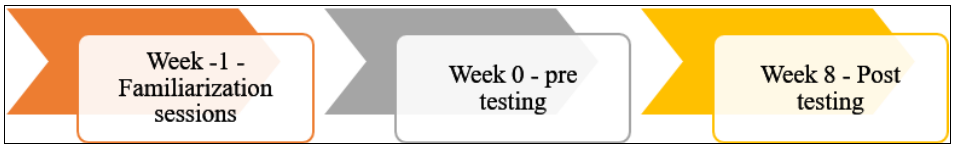

Fig 1: Intervention schedule

Administration of test

Long nose test

Objective

To determine the Balance Ability of the subjects.

Equipments

Balancing Beam**,** One Medicine Ball weighing 2 Kgs**,** One Medicine Ball weighing 4 kgs, Stop watch**,** Pencil, Paper and Clipboard

Description

A balancing beam of standard size was kept on the floor one and half meters away from the starting line. The subjects were asked to stand behind the starting line with one kilogram medicine ball in his strong hand fully stretched forward and the other hand holding the opposite ear lobe. On clapping the subject moved over the balancing beam towards the 2 kilogram medicine ball which was kept at the other end of the beam push down the medicine ball only by foot and move back to the starting line without losing the balance over the beam.

Instructions

- The arm with which the ball is carried should be kept straight.
- The medicine ball kept on the balancing beam should be rolled down with either foot.

Scoring

Only one chance was given to each subject. The time taken to complete the course was the score. At the same time, the subject who failed to complete the task without losing balance was not given any further trial and no score was awarded.

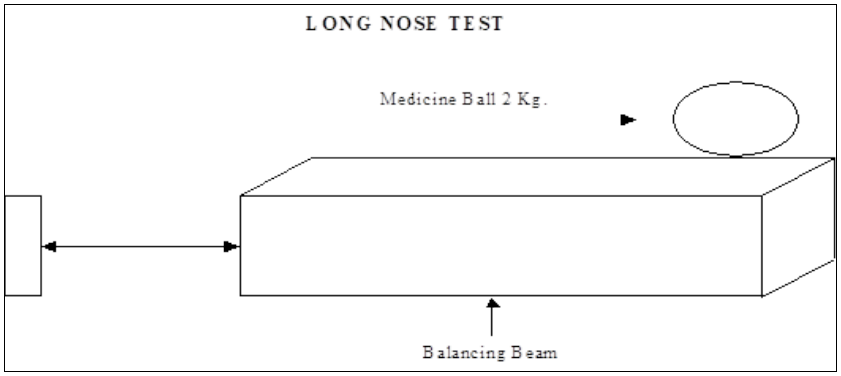

Fig 2: Balancing ability test

Training Schedule for the Experimental groups (Eight weeks, Five days a week, 30-40 min/day)

Activities	Total time duration for all the Groups = 30 -40 min
Prayer	3 min
Nadi Shuddhi	5 min
Shanti Path	2 min
Kapalbhati	20-30 min

Result

The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups.

Table 1: Descriptive Statistics of Pre-Test and Post-Test of Experimental Group and Control Group in Balance Ability

Groups	Observation	M	S. D	N
Experimental group	Pre	10.5675	1.55992	20
	Post	12.0855	1.34616	20
Control group	Pre	10.5340	1.21777	20
	Post	10.6545	1.18856	20

Above table 1 includes mean (M) and standard deviation (SD) of balance ability in the both readings i.e. on pre-test and post-test of experimental group and control group. Above table also indicates that the experimental group post observation (12.08) was higher than pre observation (10.56). In control group also group post observation (10.65) was higher than pre observation (10.53).

Table 2: Analysis of Co-Variance of Comparison of Adjusted Post Test Means of Experimental Group and Control Group of Balance Ability

Source	Type III Sum of Squares	df	Mean Square	F	P-value
Pre	13.889	1	13.889	10.846	.002
Groups	20.062	1	20.062	15.666	.000
Error	47.382	37	1.281		
Total	5252.825	40			
Corrected Total	81.749	39			

*p value < 0.05 is significant

Above table 2 shows that there was a significant effect of training on balance ability as the p-value was 0.00 which was less than 0.05. It also shows that there was significant difference between experimental and control group during pre – teat as the p-value was 0.002 which was less than 0.05.
Since, the analysis of covariance for balance ability was found significant difference between experimental group and control group. Therefore post hoc comparison LSD test was applied.

Table 3: Post Hoc Comparison of Adjusted Post Test Means of Experimental and Control Group of Balance Ability

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	P-value	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Experimental	Control	1.417*	.358	.000	.691	2.142
Control	Experimental	-1.417*	.358	.000	-2.142	-.691

*p value < 0.05 is significant

Table 3 indicates that there was significant difference between experimental group and control group as the p-value was 0.00 which was less than 0.05.

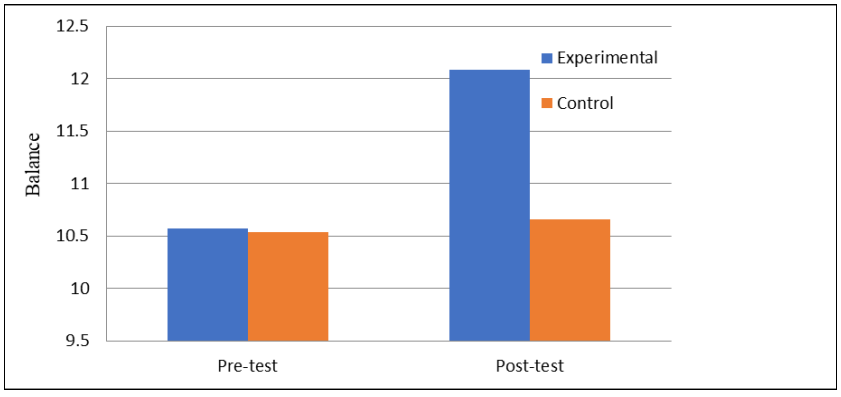

Fig 3: Graphical representation of Pre-Test and Post-Test of Experimental Group and Control Group of Balance Ability

Discussion on Findings

The research scholar examined the effect of Kapalbhati on selected Coordinating ability i.e., Balance ability of Cricket. The results, in general, support that Kapalbhati improved Balance ability of Cricketers. It was found that the experimental group improved significantly. The rate of improvement was higher for the experimental groups in comparison to the control groups. Finally, results show, that the subjects who followed the treatment of Kapalbhati improved their Balance ability higher than participants in control group. In, similar study was conducted by Gore a study on "Effect of Kapalbhati on some of the body function", Kapalbhati involves forced but rapid, voluntary abdominal breathing. Effect of Kapalbhati on some of the body functions i.e., balance ability was studied with the help of channel polygraph system. 30 observation where made on 10 healthy and trained subjects. During Kapalbhati the heart rate increased by 15 beats/min., the eye movement were found increased by Kapalbhati even if the eyes were closed. The alpha activity from the parieto-occipoital one a showed a marginal decrease in 57% observations indication a mind quieting effect on the brain.

Conclusion

From the above findings, it is concluded that the Kapalbhati having significant effect on selected Coordinating ability i.e., Balance ability as in 8 weeks.

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