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## Effect of INS and outs core strength training on muscular strength and flexibility of school boys wrestlers

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### Abstract

This study was designed to find out the effect of ins and outs core strength training on muscular strength and flexibility of high school level wrestlers. To achieve the purpose of the study, thirty boys wrestling players were selected from various schools in Coimbatore District. Their age was ranged between 14 and 16 years. They were divided into two equal groups consist of 15 each. The Group I (n=15) is considered as ins and outs core strength training (IOCST), the Group II (n=15) considered as control group (CG). The investigator did not make any attempt to equate the groups. The experimental group is given ins and outs core strength training for period of eight weeks. The control group were not given any treatment. Muscular strength was assessed by sit ups (1min), Flexibility was assessed by sit and reach. The data collected from the subject was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The results of muscular strength and flexibility improved significantly due to effect of ins and outs core strength training on muscular strength and flexibility of high school boys wrestlers.

**Keywords:** INS, outs core strength training, muscular strength, flexibility, school boys wrestlers

### Introduction

For an in and out you start seated with hands on the floor at your sides, knees bent with feet on the floor. Raise your feet off the ground and bring the knees in towards your chest. This is the test start position. Straighten your legs out in front of you, and then back in to the chest, without the feet touching the floor. This is one complete repetition. Repeat this movement as many times as possible. (Robert Wood, 2008) Wrestling and grappling sports have a long and complicated history, stretching into prehistoric times. Many traditional forms survive, grouped under the term folk wrestling. More formal systems have been codified in various forms of martial arts worldwide, where grappling techniques form a significant subset of unarmed fighting (complemented by striking techniques). Wrestling is a general term for a combat sport between two competitors involving grappling type techniques. The main objective in most forms of wrestling is to pin down the opponent's shoulders on to the mat. Wrestling forms include the Olympic styles of: Greco-Roman - In this style, wrestlers are prohibited from holding any part of the opponent's body below the waist. Freestyle - In this style, unlike other styles, wrestlers are allowed to use their legs for offense or defense during a bout. Greco-Roman wrestling is one of the two most popular styles of amateur wrestling. In this style, wrestlers are prohibited from holding any part of the opponent's body below the waist. The restriction is enforced to emphasis more on throw downs. The objective for a wrestler is to pin down the opponent's shoulders on to the mat. Greco-Roman wrestling is an extremely popular sport and is practiced in most countries around the world.

There are four categories based on age starting from 14, each of which has weight classifications. Age 20 and above fall into the senior's category which has seven weight classes from 50 to 120kg. Matches are conducted only between wrestlers in same weight class. A match lasts for three 30-minute periods. Points are awarded to both wrestlers based on the both offense and defense moves for each period. The points breakdown are, Takedowns (1 to 2 points), Exposures (1 point), Reversals (1 points), Penalties (1 or 2 points), and Out-of-Bounds (1 point). If the match does not end in a Win by fall, the wrestler who wins two out of the three

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Periods is declared as the winner. Greco-Roman wrestling is part of the Olympic Games where bouts for both men and women for several weight classifications are conducted. Freestyle wrestling is one of the two most popular styles of amateur wrestling. In this style, unlike other styles, wrestlers are allowed to use their legs for offense or defense during a bout. The objective of the sport is to pin down the opponent's shoulders on to the mat. Freestyle wrestling is major sport which is practiced in most countries around the world. Matches are conducted in indoor arenas on a thick rubber mat that has a 9m diameter. For men there are six categories and for women there are four, based on age, beginning from 14. Age 20 and above fall into the seniors category for which, men have eight and women have seven, weight classifications. A match is played for two 30-minute periods. Points, ranging from 1 to 5 are awarded for wrestlers based on their moves on offense. If one player is able to pin the opponent's shoulder on to the ground, called win by fall, the player wins immaterial of the points. Points are used to decide the winner in case where there is no win by fall. Freestyle wrestling is part of the Olympic Games and is the highest level competition for the sport. The annual World Championships is another major event held for the sport.

**Methodology**

The purpose of the study was to find out the effect of ins and outs core strength training on muscular strength and flexibility

**Table 2:** Computation of ‘t’-ratio on muscular strength and flexibility of high school boys wrestling players on experimental group and control group

Group	Variables	Group	Mean	Standard deviation	Mean difference	Standard error mean	t- ratio
Control Group	Muscular strength	Pre test	12.66	2.63	0.20	0.17	1.14
		Post test	12.86	2.55			
	Flexibility	Pre test	13.51	15.11	2.26	0.33	1.00
		Post test	13.53	1.49			
Experimental Group	Muscular strength	Pre test	22.46	3.50	0.02	0.02	6.85*
		Post test	24.73	3.39			
	Flexibility	Pre test	15.48	1.36	0.97	0.07	12.23*
		Post test	16.46	1.32			

Significant at 0.05 level of confidence (2.14), 1 and 14.

Table II reveals the computation of ‘t’ ratio between mean of pre and posttest on muscular strength and flexibility of high school level boys wrestlers. The mean values of pre and posttest of control group were 12.66, 12.86, 13.51 and 13.53 respectively. Since, the obtained ‘t’ ratio 1.14 and 1.00 was less than the required table 2.14, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated that the muscular strength and flexibility of the control group had not been improved.

of high school level wrestlers. To achieve the purpose of the study, thirty boys wrestlers were selected from various schools in Coimbatore District. Their age was ranged between 14 and 16 years. They were divided into two equal groups consist of 15 each. The Group I (n=15) is considered as experimental group, the Group II (n=15) considered as control group. The investigator did not make any attempt to equate the groups. The control group were not given any treatment. The experimental group is given ins and outs core strength training for period of eight weeks.

**Criterion measures**

**Table 1:** This test used to assess the performance and physical fitness variables are given in

S. No	Variables	Test items	Unit of Measurement
1.	Muscular Strength	Sit ups(1 minute)	In counts
2.	Flexibility	Sit and reach	In centimeter

**Statistical technique**

The collected data on muscular strength and flexibility due to the effect of ins and outs core strength training was analyzed by computing mean and standard deviation. In order to find out the significant improvement if any ‘t’ test was applied. 0.05 level of confidence was fixed to test the level of significance.

Further the computation of ‘t’ ratio between mean of pre and posttest on muscular strength and flexibility of high school level boys wrestlers. The mean values of pre and posttest of experimental group were 22.46, 24.73, 15.48 and 16.46 respectively. Since, the obtained ‘t’ ratio 6.85 and 12.23 was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated that the flexibility of the experimental group improved due to the influence of ins and outs core strength training.



**Fig 1:** Bar diagram showing the mean value on muscular strength and flexibility

### Discussion of findings

The present study experimented the effect of ins and outs core strength training on muscular strength and flexibility of high school boys wrestlers. The result of this study indicated that the ins and outs core strength training improved the muscular strength and flexibility. The findings of the present study had similarity with the findings of investigations referred in this study. Seied *et al.*, (2012) evaluate the effect of Strength and Core Stabilization Training on Physical Fitness Factors among Elderly People. Sekendiz *et al.*, (2012) <sup>[14]</sup> examined swiss- ball core strength training on strength, endurance, flexibility, and balance in sedentary women. Subramanian *et al.*, (2014) <sup>[11]</sup> reported that core strength training induced adaptations on selected physical and physiological parameters of cricket players. The result of the present study indicates that the ins and outs core strength training programme is effective method to improve muscular strength and flexibility of high school boys wrestlers. The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, the intensity used and the duration of the training programme.

### Conclusion

- Eight weeks of ins and outs strength training program significantly improved the muscular strength and flexibility of high school boys wrestling players.
- The ins and outs core strength training is appropriate training protocol to bring out desirable changes over fitness variables of wrestling.

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