



A Comparative Effect of Slow and Fast Suryanamaskar on Waist–Hip Ratio, Flexibility and Endurance

¹Dr. Dhananjay Babanrao Vitalkar, ²Dr. Manoj Uttamrao Kohale

¹Assistant Professor, ² Assistant Professor

¹Degree College of Physical Education, Amravati (M.S.)

²Degree College of Physical Education, Amravati (M.S.)

Abstract:

The purpose of the present study was to find out comparative effect of slow and fast suryanamaskar on waist–hip ratio, flexibility and endurance. To take out this investigate work, the investigator had chosen a whole 30 subjects from the Degree College of Physical Education, Amravati and those subjects were separated into two equivalent parts and given slow and fast suryanamaskar training. The age of the subjects selected in this study was between 18 to 25 years. The data was analyzed using Paired ‘t’ test to compare the before and after training values of both the groups and ANCOVA to compare the pre–posttest adjusted mean value. P value of less than 0.05 was accepted as indicating significant difference between the compared values. The above results show that six weeks of fast and slow Suryanamaskar training had a positive effect on Waist–Hip Ratio, Flexibility, Endurance, which helped in correcting their Waist–Hip Ratio and proved to be very beneficial in increasing Flexibility and Endurance. The results also show that Suryanamaskar training done at a slow pace had a positive effect on Flexibility and Endurance compared to Suryanamaskar training done at a fast pace, but no significant difference was seen on Waist–Hip Ratio. From the results obtained, it was concluded that Suryanamaskar training done at a slow pace is more suitable.

Keywords: Suryanamaskar, Waist–Hip Ratio, Flexibility, Endurance

Introduction:

Human life is based on the body. All activities of life are carried out with the help of the body. Nature has created human beings to perform various activities skillfully. Today, modernization has made human life easier, as most of the work is done by machines. Due to the sedentary lifestyle of man, the efficiency of man has decreased. Due to low working capacity of human beings, many problems like weakness, illness, chronic diseases etc. have arisen. Earlier our ancestors were healthy and fit. The major reason for this is that they had to do many strenuous physical activities like running, walking, jumping etc. Earlier the atmosphere was less polluted. Moreover, there was less stress in their lives. Today it is all reversed, ie, physical activity is less, environment is polluted, unhygienic conditions are everywhere, life is full of stress, unbalanced diet etc. All these reasons have reduced human efficiency. Today, we desperately need physical fitness not only to improve our abilities but also to improve our health and wellness. This will help develop a healthy environment around us along with community health, thereby benefiting the country (Kundra, 2009, p.1). So today most people are turning to training different physical activities or practicing yoga. One of the most important practices in yoga practice is Suryanamaskar. In which regular practice can increase the physical strength, it is also very important from the mental point of view.

Many studies show that Suryanamaskara is a great way to maintain physical health. Breathing can also be controlled in Suryanamaska increases the capacity of the lungs to absorb oxygen and increases the volume of oxygen in the body. In today's modern times, living in a very polluted world and using air conditioners continuously, the immune system of the body is reduced and we get to see people suffering from various diseases. Nowadays, hundreds of students are also suffering from many problems. There are many students

whose body mass index is seen to be in the obese category and their waist-hip ratio is also seen to be impaired. They can be controlled and fixed through Suryanamaskira. But this research has been done to clarify that while doing Suryanamaskan, it is better to do it fast or slow.

Methodology:

To take out this investigate work, the investigator had chosen a whole 30 subjects from the Degree College of Physical Education, Amravati and those subjects were separated into two equivalent parts and given slow and fast suryanamaskar training. The age of the subjects selected in this study was between 18 to 25 years. The subjects were tested before the training started and the subjects were tested again after the training was completed.

Training Program:

In this study, suryanamaskar training was given at fast and slow pace for six weeks. The training program was closed only one day a week. In suryanamaskar training, both the groups were given the same 12 suryanamaskar (ansans), but there was a difference in the speed of the asanas according to the group and there was a difference in the total training time.

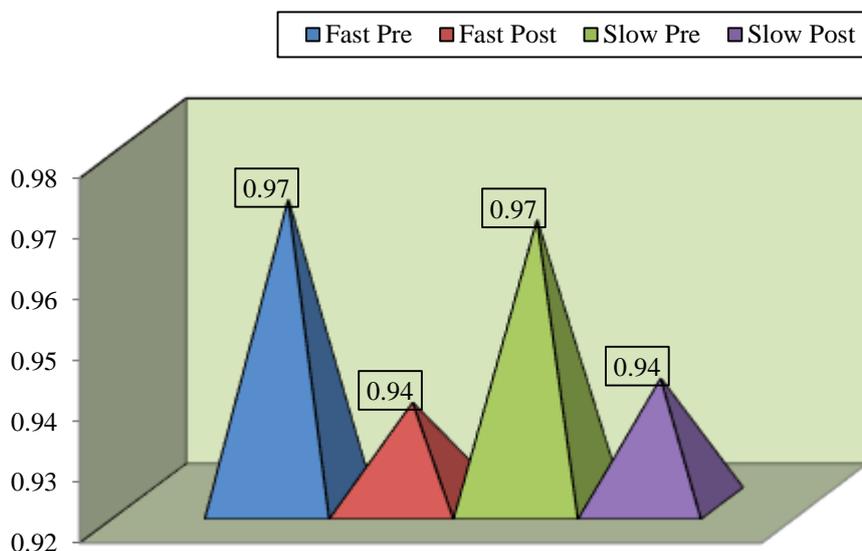
Statistical Analysis:

The before and after scores on waist-hip ratio, flexibility and endurance obtained for both the groups were treated statistically to assess the effect of the slow and fast suryanamaskar practice. The data was analyzed using Paired 't' test to compare the before and after training values of both the groups and ANCOVA to compare the pre-posttest adjusted mean value. P value of less than 0.05 was accepted as indicating significant difference between the compared values.

Table-1: comparison of waist-hip ratio between pre and post-test of fast and slow suryanamaskar practice groups

Group	Test	Mean	SD	SE	MD	Ot	df	Tt
Fast	Pre	0.97	0.05	0.017	0.033	10.000*	14	2.145
	Post	0.94	0.04					
Slow	Pre	0.97	0.05	0.017	0.026	5.350*	14	2.145
	Post	0.94	0.04					

Table-1 shows the pre and post-test comparison of waist-hip ratio for the fast suryanamaskar practice group the mean pre value of 0.97 improve to 0.94 in the post condition, the mean difference being found to be highly significant ($p < 0.05$). In the slow suryanamaskar practice group the pre mean value 0.97 improve to 0.94 in the post condition, the mean difference being found to be highly significant ($p < 0.05$).

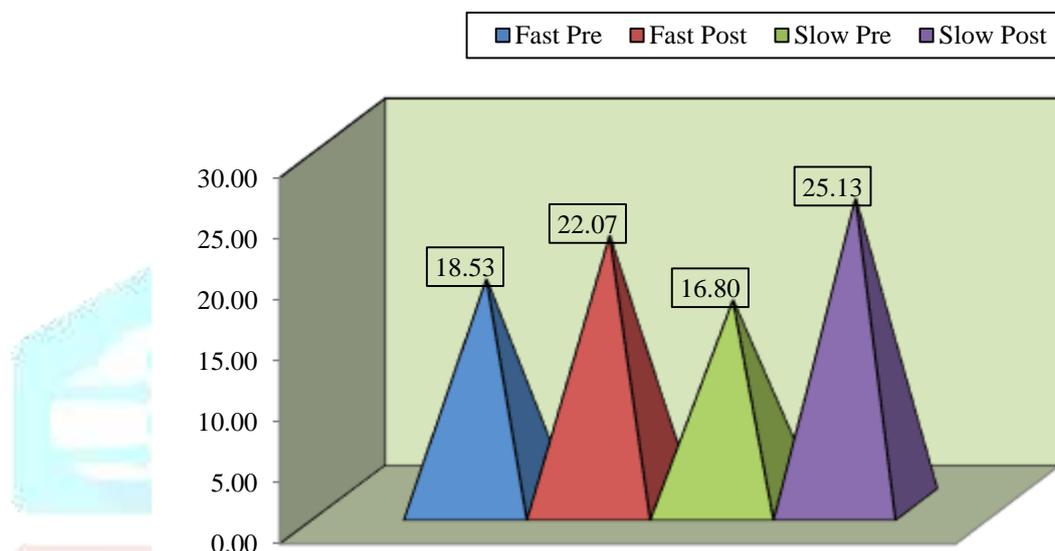


Graph-1: Mean value of waist-hip ratio between pre and post-test of fast and slow suryanamaskar practice groups

Table-2: comparison of flexibility between pre and post-test of fast and slow suryanamaskar practice groups

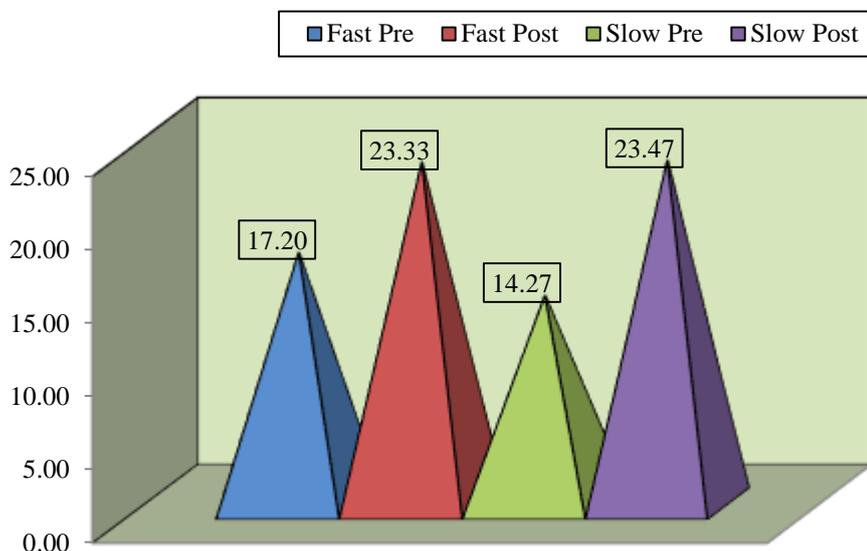
Group	Test	Mean	SD	SE	MD	Ot	df	Tt
Fast	Pre	18.53	5.59	2.198	3.533	9.390	14	2.145
	Post	22.07	6.42					
Slow	Pre	16.80	3.69	1.356	8.333	11.149	14	2.145
	Post	25.13	3.74					

Table-2 shows the pre and post-test comparison of flexibility for the fast suryanamaskar practice group the mean pre value of 18.53 improve to 22.07 in the post condition, the mean difference being found to be highly significant ($p < 0.05$). In the slow suryanamaskar practice group the pre mean value 16.80 improve to 25.13 in the post condition, the mean difference being found to be highly significant ($p < 0.05$).

**Graph-2:** Mean value of flexibility between pre and post-test of fast and slow suryanamaskar practice groups**Table-3:** comparison of endurance between pre and post-test of fast and slow suryanamaskar practice groups

Group	Test	Mean	SD	SE	MD	Ot	df	Tt
Fast	Pre	17.20	6.14	2.261	6.133	6.946	14	2.145
	Post	23.33	6.24					
Slow	Pre	14.27	3.51	1.491	9.200	8.493	14	2.145
	Post	23.47	4.58					

Table-3 shows the pre and post-test comparison of endurance for the fast suryanamaskar practice group the mean pre value of 17.20 improve to 23.33 in the post condition, the mean difference being found to be highly significant ($p < 0.05$). In the slow suryanamaskar practice group the pre mean value 14.27 improve to 23.47 in the post condition, the mean difference being found to be highly significant ($p < 0.05$).



Graph-3: Mean value of endurance between pre and post-test of fast and slow suryanamaskar practice groups

Table 4: Shows the comparison of waist-hip ratio between fast and slow suryanamaskar groups of pre and post-test.

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.000	1	.000	1.752	.197
Error	.005	27	.000		

Table No.4: indicates the obtained 'F' ratio (1.752), is less than the required table values of 4.210 for degrees of freedom (1,27). The result of the study was indicated that there was no significant difference in waist-hip ratio between fast and slow suryanamaskar group of pre and post-test.

Table 5: Shows the comparison of flexibility between fast and slow suryanamaskar groups of pre and post-test.

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	166.573	1	166.573	30.582*	.000
Error	147.064	27	5.447		

Table No.5: indicates the obtained 'F' ratio (30.582), is more than the required table values of 4.210 for degrees of freedom (1,27). The result of the study was indicated that there was significant difference in flexibility between fast and slow suryanamaskar group of pre and post-test.

Table 6: Shows the Pair wise Comparisons of flexibility between fast and slow suryanamaskar groups of pre and post-test adjusted Means.

Group		Mean Difference	Std. Error	Sig. ^a
Fast	Slow			
21.202	25.998	4.497	0.867	.000

Table No.6: indicates the mean difference (4.497), is more than the required Critical values. The result of the study was indicated that there was significant difference in flexibility between fast and slow suryanamaskar groups of pre and post-test adjusted means.

Table 7: Shows the comparison of endurance between fast and slow suryanamaskar groups of pre and post-test.

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	42.823	1	42.823	3.013	.094
Error	383.683	27	14.210		

Table No.7: indicates the obtained 'F' ratio (3.013), is more than the required table values of 4.210 for degrees of freedom (1,27). The result of the study was indicated that there was significant difference in endurance between fast and slow suryanamaskar group of pre and post-test.

Table 8: Shows the Pair wise Comparisons of endurance between fast and slow suryanamaskar groups of pre and post-test adjusted Means.

Group		Mean Difference	Std. Error	Sig. ^a
Fast	Slow			
22.151	24.649	2.497	1.438	0.094

Table No.8: indicates the mean difference (2.497), is more than the required Critical values. The result of the study was indicated that there was significant difference in endurance between fast and slow suryanamaskar groups of pre and post-test adjusted means.

Conclusion:

The above results show that six weeks of fast and slow Suryanamaskar training had a positive effect on Waist–Hip Ratio, Flexibility, Endurance, which helped in correcting their Waist–Hip Ratio and proved to be very beneficial in increasing Flexibility and Endurance. The results also show that Suryanamaskar training done at a slow pace had a positive effect on Flexibility and Endurance compared to Suryanamaskar training done at a fast pace, but no significant difference was seen on Waist–Hip Ratio. From the results obtained, it was concluded that Suryanamaskar training done at a slow pace is more suitable.

References:

- Kundra, S. (2009). *Physical Education*. Third Edition. New Delhi: Evergreen Publications, p. 1.
- Bhavanani, A. B. (2011). A comparative study of slow and fast suryanamaskar on physiological function. *International Journal of Yoga*, 4, 71-76.
- Keode, S. and Afle, G. (2022). Effect of Suryanamaskar on upper body verses lower endurance and flexibility amongst children at the end of six-week training (A comparative study). *International Journal of Science and Research Archive*, 7(2), 432–442.
- Raja, S. C. (2023). Effects of Suryanamaskar on Depression and Trunk Flexibility among Older Men. *Innovare Journal of Education*, 11 (4), 25-29.
- Kerketta, I., Singh, K. and Bisht, S. (2015). Effect of Six Weeks Training of Suryanamaskar on Flexibility and Agility. *Monthly Multidisciplinary Research Journal*, 4 (4), 1-4.

Gurubasavaraj, G., Chauhan, S.S. & Biradar, L.S. (2024). Effect of Suryanamaskar Training on Flexibility Enhancement in Young Players: A Pre-Post Intervention Study. *Journal For Research in Applied Science and Engineering Technology*, 12 (2), 350-352.

Sarkar, D. (2022). Effect of Surya namaskar on selected physical fitness variables of physical education students. *International Journal of Physical Education, Sports and Health*, 9(1), 425-427

