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Flexibility Outcomes Following Suryanamaskar at Varying Paces and Duration

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The purpose of the study was to evaluate the effect of the different paces of Suryanamaskar on flexibility variable. To find out and evaluate the pattern of progress in different paces of Suryanamaskar practice. A total 120 male students were randomly selected from B.Tech degree program for CoAE, JNKVV Jabalpur. The ages ranged of subject were between 17-24 years. For administration practicability three intact groups were formed namely group 1 group 2 group 3. The treatment pace 1 (90 second), pace 2(180 second) pace 3(360 second) was randomly allotted among 03 group; each consisted of 40 students name as pace 1, pace 2 and pace 3 groups. The groups actively participated for a period of 12 weeks with their respective paces of Suryanamaskar. The quantitative measurement of each subject taken with help of standard equipment before the training programme pretest after 6 and 12 weeks of training programme. Descriptive statistics and ANOVA was employed to find out within and between groups the effect of different pace effect of training durations and effect between pace and training durations of Suryanamaskar on selected flexibility variable by using SPSS 19 and the level of significance was at 0.05.Results: The findings indicated that the practice of Suryanamaskar for 6 and 12 weeks is enough to bring out significant improvement flexibility variable in all three paces of groups, there was no significant difference found among three paces of groups on flexibility at pretest. However, after 12 week training of Suryanamaskar the effect on flexibility was pace 3 groups found most improvement followed by pace 2 and pace 1 group.

Keyword: Flexibility, variable, Suryanamaskar pace, sit& reach test etc

Introduction: Suryanamaskar is a well know and imperative technique with the yogic gamut. It is a vital yogic practice that not only promotes a healthy and dynamic lifestyle but also fosters spiritual awakening and heightened awareness.

Yoga postures are the physical positions that co-ordinate breath with movement and with holding the position to stretch and strengthen different parts of body. Yogic exercises are the ideal complement to other forms of physical exercises such as running, cycling, and swimming. Yogic postures systematically work on all the major muscle groups, including the back, neck and shoulders, deep abdominal, hip and even ankles, feet wrists and hands. By their very nature, yogic exercises affect all the muscles groups and organs, as they simultaneously impart strength, increase flexibility and bring nourishment to internal organs. Although most poses are not aerobic in nature, they do in fact send oxygen to the cell by way of conscious deep breathing and sustained stretching and contraction of different muscle groups.

Yoga can condition the muscles of the entire body. This is especially useful in athletics when muscles are developed in the particular area due to its use in a chosen sport. Yoga offers a support system that counteracts the overuse of specific muscle groups. Regular practice of yoga increases the athlete's energy level and one pointed concentration. Athletes are often subject to sore and tense lower backs, tight hamstring, rigid spine, repeated injuries, leading to stress and discomfort. All of this can be addressed by the yogic practice. Yoga offers rest and regeneration as an essential part of yoga postures. Pranayama, and mental concentration techniques help. The athletes' regular training together with this can create well integrated and balanced athletic body and enhance recovery and performance.

Objective: The purpose of the study were to assess the effect of the different paces of Suryanamaskar on flexibility variable to compare the effect of different training duration of Suryanamaskar practice on flexibility variable and to find out and assess the pattern of progress in different paces of Suryanamaskar practice in different training duration on selected flexibility.

Methodology: To find out the effect of different paces of Suryanamaskar practice on flexibility total 120 male students were randomly selected from B.Tech degree program for CoAE, JNKVV Jabalpur. The ages ranged of subject were between 17-24 years. For administration practicability three intact groups were formed namely group 1 group 2 group 3. The treatment pace 1 (90 second), pace 2 (180 second) pace 3 (360 second) was randomly allotted among 03 group; each consisted of 40 students name as pace 1, pace 2 and pace 3 groups. The groups actively participated for a period of 12 weeks with their respective paces of Suryanamaskar. The quantitative measurement of each subject taken with help of standard equipment before the training programme pretest after 6 and 12 weeks of training programme. The sit-and-reach test was used to evaluate flexibility, and the results were expressed in cm. Descriptive statistics and ANOVA was employed to find out within and between groups the effect of different pace effect of training durations and

effect between pace and training durations of Suryanamaskar on selected flexibility variable by using SPSS 19 and the level of significance was at 0.05.

Table 1
Descriptive statistics on Suryanamaskar training intervals and the Flexibility of various groups

Duration		N	Mean	Std. Dev.
Pre- test	Pace 1	40	19.27	1.58
	Pace 2	40	19.46	1.64
	Pace 3	40	19.24	1.29
6 Weeks	Pace 1	40	21.47	1.69
	Pace 2	40	21.70	1.67
	Pace 3	40	21.88	1.29
12 Weeks	Pace 1	40	23.27	1.73
	Pace 2	40	23.70	1.74
	Pace 3	40	24.95	1.15

Above table includes mean (M), standard deviation (SD), in all the data readings i.e. on pre-test after 6 and 12 weeks of training. According to the table the highest mean value of flexibility after12weekswas Pace3groupfollowedbypace2groupsandpace1group.

Table explain the descriptive statistics of pretest, 6 weeks and 12 weeks group with different pace of Suryanamaskar the mean and standard of pretest group pace 1, pace 2 and pace 3 respectively are 19.27 ±1.58, 19.46 ±1.64 and 19.24 ±1.29. the mean and standard 6 weeks groups pace 1, pace 2 and pace 3 respectively and the mean and standard 12 weeks groups pace 1, pace 2 and pace 3 respectively are after 6 week 21.47±1.69 ,21.70 ±1.67 and 21.88 ±1.29 after 12 week 23.27 ±1.73,23.70 ±1.74 and 24.95 ±1.15.

A graphic representation of the marginal means for each training duration show below.

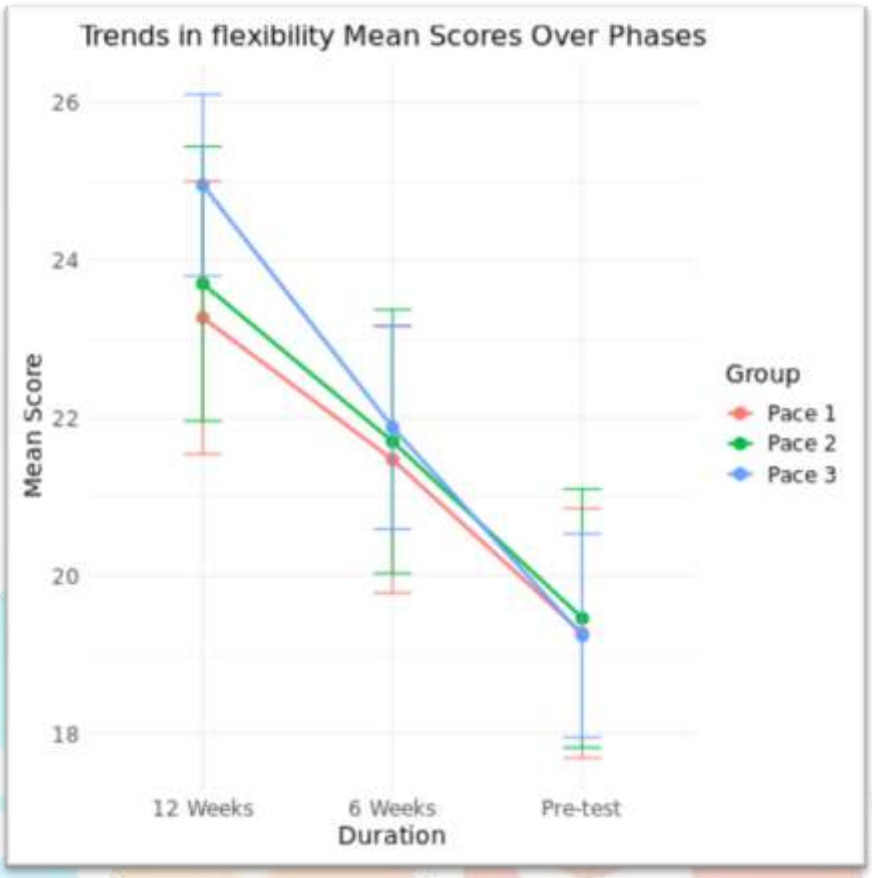

Figure 1: Marginal Means of Flexibility for Training Durations Graphically Represented

Table 2
Analysis of Variance (ANOVA) Statistics pretest data among the different Group's i.e. pace 1, pace 2 and pace 3 in initial phase on flexibility

		Sum of Squares	df	Mean Square	F	Sig.
Pretest data of flexibility	Between Groups	1.135	2	.567	.248	.781
	Within Groups	267.974	117	2.290		
	Total	269.109	119			

* Significant at 0.05

Table 2indicates that analysis of variance (ANOVA) of pace 1, pace 2 and pace 3 groups' uses to find the variances of the group in initial phase to show the effect of Suryanamaskar on the flexibility. As no significance difference was found in among the groups, as the p value was found .781, which is higher than at0.05 level of significance.

Table 3
Analysis of Variance (ANOVA) Statistics of between the groups after 6 weeks Among the different the group's i.e. pace 1, pace 2 and pace 3 in effect Of Suryanamaskar on flexibility

		Sum of Squares	df	Mean Square	F	Sig.
After 6 weeksflexibility	Between Groups	3.52	2	1.76	.719	.490
	Within Groups	286.99	117	2.45		
	Total	290.51	119			

*Significant at 0.05.

Table3 revels that analysis of variance (ANOVA) was employed on after 6 weeks among the different groups of pace 1, pace 2 and pace 3to find the variances of the groups after 6 weeks of training to show the effect of Suryanamaskar on the flexibility. No multiple comparison was requested for this variable since there was no significant difference between the groups, as indicated by the p value of.490, which is larger than the 0.05 level of significance.

Table 4
Analysis of Variance (ANOVA) Statistics of between the groups after 12 weeks Among the different the group's i.e. pace 1, pace 2 and pace 3 in Effect of Suryanamaskar on flexibility

		Sum of Squares	df	Mean Square	F	Sig.
After 12 weeks flexibility	Between Groups	60.46	2	30.23	12.27	.000
	Within Groups	288.22	117	2.46		
	Total	348.68	119			

*. Significant at 0.05

Table 4 reveals that analysis of variance (ANOVA) was used to determine the differences between the pace 1, pace 2, and pace 3 groups after 12 weeks of training in order to demonstrate the impact of Suryanamaskar on flexibility. There was a significant difference between the groups, as indicated by the p value of.000, which is less than at 0.05 threshold of significance.

Table 5
Multiple Comparison (LSD) Statistics after 12 weeks training to Suryanamaskar Among the pace 1, pace 2 and pace 3 groups for flexibility

Dependent Variable	(I) duration	(J) duration	Mean Difference (I-J)	Std. Error	Sig.
After 12 weeks flexibility	90 sec	180 sec	-.43	.350	.223
		360 sec	-1.67*	.350	.000
	180 sec	90 sec	.43	.350	.223
		360 sec	-1.24*	.350	.001
	360 sec	90 sec	1.67*	.350	.000
		180 sec	1.24*	.350	.001

*. Significant at 0.05.

Following 12 weeks of training in the Suryanamaskar LSD technique among the pace 1, pace 2, and pace 3 groups, Table 26 shows the statistics of multiple comparison (LSD) utilized to determine the means difference between the groups on flexibility. p- Values of.000 and.001, respectively, which are below the 0.05 level of significance, were used to determine the significance of the differences in means between the pace 1 and pace 3 and pace 2 and pace 3 groups. Furthermore, no significant differences were found between pace 1 and pace 2 groups, with a p value of.223 that is higher than 0.05 level of significance.

Results and Discussion:

The data reveal a clear trend of increasing flexibility across all pacing groups over time with Suryanamaskar training: There is a significant improvement in flexibility from pre-test through both training durations (6 weeks and again at the end of the full training period at 12 weeks). The consistent rise in means indicates effective training outcomes, while relatively low standard deviations suggest that subjects are achieving similar improvements in flexibility.

On the basis of findings we concluded that the practice of Suryanamaskar for 6 and 12 weeks is adequate to bring out significant improvement on flexibility. In all three groups, improvement in flexibility was almost similar after 6 and 12 weeks. There was no significant difference found among three groups on flexibility at pretest after 6 and 12 weeks. Further, after 12 weeks training of Suryanamaskar pace 3 group found most improvement in flexibility followed by pace 2 and pace 1 group. However in flexibility was found insignificant all these paces after the 6 weeks of training of Suryanamaskar.

CONCLUSION

Based on our observations and the finding of the study, we conclude that the Suryanamaskar (Sun Salutation) is an excellent exercise for maintaining ideal fitness as well as range of the motion of joints and muscles.

RECOMMENDATIONS

The findings of this study clearly demonstrate that Suryanamaskar training can improve the flexibility moreover; the regular practice of Suryanamaskar is more effective whole development of health and fitness. Henceforth it can recommend that coaches, PET of schools and physical educators to incorporate practice of Suryanamaskar in training session.

References

Swami Satyananda Saraswathi. Yoga Publications Trust; Munger, Bihar, India: 2009. A systematic course in the ancient tantric techniques of Yoga and Kriya; p. 133.

Digambaraji, S., & koaje, R. S. (1998). Hathapradipika of Svatmaramli. (Second edition). Kavialyadhama: S.M.Y.M. Samiti.

Bal. B.S., & Kaur. P.J. (2009). Effects of Selected Asanas in Hatha Yoga on Agility andFlexibility Level. Journal of Sport and Health Research, 1(2), 75-87.

Choudhary. R., & Krzytof .S. (2010). The Effect of Dynamic Suryanamaskar on Flexibility of University Students. J.A.D.Research, I (I), 45-48.

Geetanjali & Sharma, Arushi & Ajit kumar, S & Wahane, Ajit kumar. (2023). the Impact of Surya Namaskar (Sun Salutation) On Body Flexibility and Endurance of Healthy Individual: Anatomical Perspective". World Journal of Pharmacy and Pharmaceutical Sciences. 12. 852. 10.20959/wjpps20235-24758.

Kumari P, et.al (2022), Role of Surya Namaskar in improving strength, flexibility and diseases of various biological systems. Volume 10, Issue 11 November 2022 | ISSN: 2320-2882.

Raja. S. C. (2012). Effect of Yogic Practices on Flexibility Cholesterol and Blood Pressure. Online International interdisciplinary Research Journal. 2(6), 221-225.

Bhutkar, M. V., Bhutkar, P. M., Taware, G. B., & Surdi, A. D. (2011). How effective is sun salutation in improving muscle strength, general body endurance and body composition?. Asian journal of sports medicine, 2(4), 259–266. https://doi.org/10.5812/asjsm.34742.