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Effect of power yoga and pranayama practices on selected physical and physiological variables among intercollegiate sports men

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Abstract

The purpose of the study was to find out the effect of Power Yoga and Pranayama Practices on Selected Physical and Physiological Variables among Inter-Collegiate Sports Men. To achieve the purpose of the study 30 men subjects were randomly selected from the Bharathiar University affiliated Colleges, Coimbatore District. The selected subjects were divided into two equal groups with 15 subjects in each group. The Experimental group-I (N=15) underwent Power Yoga and Pranayama practices and Control group (N=15) did not undergo any practices. The data were collected before and after the training period of 12 weeks and the data collected were statistically analyzed with 't' ratio, which was used to find out the significant difference on selected Physical variables of leg strength, abdomen strength endurance, agility, leg explosive power and physiological variables of resting pulse rate, and breath holding time. Power Yoga and Pranayama practice showed significant improvement in leg strength, abdomen strength endurance, agility, leg explosive power and pulse rate and breath holding time.

Keywords: Power yoga, pranayama, leg strength, abdomen strength endurance, agility, leg explosive power, resting pulse rate, and breath holding time

Introduction

Yoga is a psycho-somatic-spiritual- spiritual discipline for achieving union and harmony between our mind, body, and soul and the ultimate union of our individual consciousness. Pranayama is derived from two Sanskrit words, namely, prana, which means vital or life energy, ayama means to prolong (Wolter).

Power Yoga is a fitness-based practice. An offshoot of Ashtanga Yoga, it has many of the same qualities and benefits, including building internal heat, increased stamina, strength, and flexibility, as well as stress reduction. Teachers design their own sequences, synchronize their breath with their movements. It involves flowing through many poses in rapid succession, it can be challenging for yoga newbies who aren't super familiar with the poses. So in this routine, the scholar took the two core principles of power yoga breath-based movement and flowing between the poses and made the flows simpler and safer than traditional. The workout is still heating and meditative, but accessible to all levels even for beginners.

Power Yoga is so much more than a physical workout that's why it's so addictive. Not only Power Yoga will help you achieve a beautiful body and it will also help to develop a sound mind. It allows us to find peace in the hurly-burly of urban life and become a calmer, healthier, and happier person. Power Yoga takes the athleticism of Ashtanga, including lots of vinyasas, but gives each teacher the flexibility to teach any poses in any order, making every class different. With its emphasis on strength and flexibility, power yoga brought yoga into the gyms and people began to see yoga as a way to work out.

Power Yoga is definitely an intense workout that will make you sweat. It is a traditional Ashtanga practice follows the same series of poses and makes you hold each for five breaths before moving through a next movement. Power Yoga classes move even with faster rhythm. There are very few moments of being in a pose and getting the feeling that it's taking forever. Soon enough, we can be out and moving on to the next Asana. It's great for strength training: Other forms of yoga may be ideal for flexibility and meditation, but in Power Yoga, we can

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lift and hold your entire body's weight constantly. These classes incorporate a serious movements of yoga, and they are definitely going to get the entire body into gear.

The scholar made an attempt to find out the effects of power yoga and pranayama practices would be significantly improve the physical and physiological variables namely Leg Strength, Abdomen Strength Endurance, Agility, Leg explosive Power, Resting Pulse rate and Breath Holding Time among inter-collegiate sports men.

Materials and methods

For the present study 30 Inter collegiate level sports men, were taken as subject. The subjects participated in Football, Hockey, Basketball, Handball, Kabaddi, Kho-Kho, and Volleyball from inter collegiate level. The subject were selected from Bharathiar University affiliated colleges Coimbatore, Tamil Nadu. The subject were selected as randomly among them 15 subjects were selected for experimental group. Who volunteered to participate in the training programme and the remaining 15 subject were taken as control group and they did not in any training programme. The selection of variables leg strength, abdomen strength endurance, agility, leg explosive power, resting pule rate, breath holding time. The training programme schedule for 12 weeks with one hours in every morning session from 6.00 am to 7.00 am pre-test and post test was conducted before and after the end of the 12 weeks for group-I and group-II. The data collected from the experimental group were statistically examined with 't' test and the level of significance was fixed at 0.05 level of confidence.

Test procedure

The leg strength was measured by wall off squat standing in Seconds, abdomen strength endurance was measured by sit ups in number/minutes, agility was measured by 10X4 shuttle run in seconds, leg explosive power was measured by standing broad jump in meters, resting pulse rate was measured by inbpm and breath holding time was measured by closing the nostels by nose clip in seconds.

Training procedure

Yogic practice classes were conducted three days per week, from 6.00 am to 7.00 am the practice was comprised of (four main series of yogasana). For this study the training programme consisted of power yoga and pranayama. Each series started with sun salutations (Suryanamaskar) followed by a set of standing postures. Then practitioners moved on to a set of seated postures, supine postures, prone postures and selected pranayama practices. The training was given for 12 weeks of total duration. The training programme last for 60 minutes for a session in a day. The training started with meditation for 5 minutes, stretching exercise for 10 minutes and followed by power yogapractices for 30 minutes. The rest period in between power yoga was 2

minutes and it was decreased to 30 seconds gradually with a rest in between set for 30 seconds and in creased the repetitions gradually for 12 weeks. The period rest in between asanas for 30 seconds and each set rest in between for 1 minutes. After completing power yoga practices 60 seconds rest was give and pranayama was given for 5 minutes and repetitions with rest in between set for 30 seconds followed by 10 minutes for relaxation technique and increased the repetitions gradually which was in the training schedule give below. First and second week Suryanamaskar for five rounds the name of asana Tadasana, Viksasana, Nintra Dhanurasanam, VeeraPathrasanam-I, Vajrasana, Sasangasana, Uttana Padasana, Sedhupandasana, Bhujangasana, Meruasana. followed by the name of pranayama Batrika Pranayama, Bahya Pranayama. Their and fourth week the suryanamaskar seven rounds the name of asana Konasana, Ardhakadi Chakrasana, Nintra Dhanurasanam, Uttkattasana, Komukasana, Saptavajrajasana, Pavanamuktasana (alternate leg), Chaturmukadantasana, Marjasana and followed by name pranayama Moorchai Pranayama, Digra Pranayama. Fifth and sixth week nine rounds of suryanamaskar followed by the name of asana Prayasana, Padhahusthasana, Patchimothasana, Matsyesanam, ArthaMatyendrasana, Naukasana, Udapadasanam, Pavanamuktasana, Bhujangasana-II, Matsyasana and followed by the name pranayama Bramary Pranayama, Nadisodhana pranayama. Seventh and eight week suryanamaskar eleven rounds followed by the name of suryanamaskarGarudasana, VeeraPathrasanam-II Ekapadamalasan, Meruasana, simasana, Artha Supta Virasana, Ekapada Sethupandasana, Salabasana, Dhanurasana, Meruasana and followed by the name of pranayama Moorchai Pranayama, Nadisodhana Pranayama. Nineth and tenth week suryanamaskar thirteen rounds the name of asana Utkattasana, Trikonasana, Matsyendrasana, Veera Pathrasanam-III, Parivitta Janusirasasana, Ustrasanam, Sarvangasana, Mayurasanam, Viparithakarani, Kalasana and name of pranayama Shitali Pranayama, Ujai Pranayama and Eleventh and twelfth week fifteen rounds the name of the asana Artha Baddha Padmottasana, Nindra Padmasanam, Utkattasana, Upavitakonasana, Pakkasana, Kapotasana, Virabhadrasana, Balasana, Natarasasana, Artha Halasana, Sirasasana and followed by name of pranayama Kapalapathi Pranayama, Anuloma Vilima Pranayama.

Statistical technique

The purpose of present study was to find out the effect of power yoga and pranayama practices on physical and physiological variables. To achieve this, the collected data on the criterion measures namely leg strength, abdomen strength endurance, leg explosive power, resting pulse rate and breath holding time were treated by paired 't' test. The statistical level of significance is fixed at 0.05.

Table 1: Computation of 't' ratio between pre and post-test measure experiment group on Leg Strength

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	37.14	4.85	2.36	0.32	7.28*
Post-test	39.50	4.23			

Significant at 0.05 level of confidence.

Table-1 reveals the computation of 't' ration between means of pre and post-test on Leg Strength on intercollegiate sports

men. The mean values of pre and post-test of experimental group were 37.14 and 39.50 respectively. Since, the

obtained 't' ratio 7.28 was higher than the required table 2.145, it was found to be statistically significant for the degree of freedom 1 14 at 0.05 level of confidence. The

result clearly indicated that the leg strength of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 2: Computation of 't' ratio between pre and post-test measure Control group on Leg Strength

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	37.24	4.69	0.57	0.33	1.76
Post-test	36.67	4.27			

Significant at 0.05 level of confidence.

Table-2 reveals the computation of 't' ration between means of pre and post-test on Leg Strength on intercollegiate sports men. The mean values of pre and post-test of experimental group were 37.24 and 36.67 respectively. Since, the obtained 't' ratio 1.76 was less than the required table 2.145, 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 leg strength of the control group had not been improved.

Table 3: Computation of 't' ratio between pre and post-test measure experiment group on Abdomen Strength Endurance

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	32.60	3.31	4.46	0.38	11.87*
Post-test	37.66	2.60			

Significant at 0.05 level of confidence.

Table-3 reveals the computation of 't' ration between means of pre and post-test on Abdomen Strength Endurance on intercollegiate sports men. The mean values of pre and post-test of experimental group were 32.60 and 37.66 respectively. Since, the obtained 't' ratio 11.87 was higher than the required table 2.145, 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 Abdomen Strength Endurance of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 4: Computation of 't' ratio between pre and post-test measure Control group on Abdomen Strength Endurance

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	33.33	2.58	0.40	0.43	0.92
Post-test	32.93	2.46			

Significant at 0.05 level of confidence.

Table-4 reveals the computation of 't' ration between means of pre and post-test on Leg Strength on intercollegiate sports men. The mean values of pre and post-test of experimental group were 3.33 and 32.93 respectively. Since, the obtained 't' ratio 0.92 was less than the required table 2.145, 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 leg strength of the control group had not been improved.

Table 5: Computation of 't' ratio between pre and post-test measure experiment group on Agility

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	14.48	0.93	2.62	0.29	9.06*
Post-test	11.85	0.99			

Significant at 0.05 level of confidence.

Table-5 reveals the computation of 't' ration between means of pre and post-test on agility on intercollegiate sports men. The mean values of pre and post-test of experimental group were 14.48 and 11.85 respectively. Since, the obtained 't' ratio 9.06 was higher than the required table 2.145, 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 leg strength of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 6: Computation of 't' ratio between pre and post-test measure Control group on Agility

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	14.37	0.68	0.45	0.23	1.98
Post-test	14.83	0.82			

Significant at 0.05 level of confidence.

Table-6 reveals the computation of 't' ration between means of pre and post-test on Agility on intercollegiate sports men. The mean values of pre and post-test of experimental group were 14.37 and 14.83 respectively. Since, the obtained 't' ratio 1.98 was less than the required table 2.145, 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 leg strength of the control group had not been improved.

Table 7: Computation of ‘t’ ratio between pre and post-test measure experiment group on Leg Explosive Power

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	2.50	0.53	0.49	0.64	6.67*
Post-test	2.99	0.38			

Significant at 0.05 level of confidence.

Table-7 reveals the computation of ‘t’ ration between means of pre and post-test on Leg Explosive power on intercollegiate sports men. The mean values of pre and post-test of experimental group were 2.50 and 2.99 respectively. Since, the obtained ‘t’ ratio 6.67 was higher than the required table 2.145, 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 Leg Explosive power of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 8: Computation of ‘t’ ratio between pre and post-test measure Control group on Leg Explosive Power

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	2.60	0.52	0.08	0.20	0.39
Post-test	2.69	0.93			

Significant at 0.05 level of confidence.

Table-8 reveals the computation of ‘t’ ration between means of pre and post-test on Leg Explosive power on intercollegiate sports men. The mean values of pre and post-test of experimental group were 2.60 and 2.69 respectively. Since, the obtained ‘t’ ratio 0.39 was less than the required

table 2.145, 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 Leg Explosive power of the control group had not been improved.

Table 9: Computation of ‘t’ ratio between pre and post-test measure experiment group on Pulse rate

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	72.33	2.31	1.13	0.32	3.52*
Post-test	71.20	1.85			

Significant at 0.05 level of confidence.

Table- reveals the computation of ‘t’ ration between means of pre and post-test on Pulse rate power on intercollegiate sports men. The mean values of pre and post-test of experimental group were 72.33 and 71.20 respectively. Since, the obtained ‘t’ ratio 3.52 was higher than the

required table 2.145, 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 Pulse rate of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 10: Computation of ‘t’ ratio between pre and post-test measure Control group on Pulse rate

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	72.33	1.71	0.33	0.28	1.16
Post-test	72.66	1.91			

Significant at 0.05 level of confidence.

Table-8 reveals the computation of ‘t’ ration between means of pre and post-test on Pulse rate on intercollegiate sports men. The mean values of pre and post-test of experimental group were 72.33 and 72.66 respectively. Since, the obtained ‘t’ ratio 1.16 was less than the required table 2.145,

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 Pulse rate of the control group had not been improved.

Table 11: Computation of ‘t’ ratio between pre and post-test measure experiment group on Breath Holding Time

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	24.75	4.70	8.40	0.79	10.19*
Post-test	32.79	4.94			

Significant at 0.05 level of confidence.

Table- reveals the computation of ‘t’ ration between means of pre and post-test on Breath Holding Time on intercollegiate sports men. The mean values of pre and post-test of experimental group were 24.75 and 32.79 respectively. Since, the obtained ‘t’ ratio 10.19 was higher than the required table 2.145, 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 Breath Holding Time of the experimental group improved due to the influence of specific power yoga and pranayama practices.

Table 12: Computation of 't' ratio between pre and post-test measure Control group on Breath Holding Time

Group	Mean	Standard deviation	Mean difference	Standard error	t- ratio
Pre-test	24.22	4.55	0.78	0.40	1.95
Post-test	23.43	5.13			

Significant at 0.05 level of confidence.

Table-8 reveals the computation of 't' ration between means of pre and post-test on Breath Holding Time on intercollegiate sports men. The mean values of pre and post-test of experimental group were 24.22 and 23.43 respectively. Since, the obtained 't' ratio 1.95 was less than the required table 2.145, 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 Breath Holding Time of the control group had not been improved.

Discussion on finding

Yoga improve dexterity, strength and muscular skeletal co-ordination of the subjects. It involves co-ordinated action of synergistic and antagonistic muscles which brings increased steadiness, strength, stamina, flexibility, endurance, aerobic power and neuro-muscular co-ordination. Yoga improves overall performance and work capacity of the individual. Power performed with series of poses in sequence with more repetition and sets the muscles get strength so this leads to increased in strength of the leg and abdomine once the strength of the muscle in developed it leads to the increased performance of explosive power too. As far as agility in concern, when the yoga performed in the sequential manner with breath concentration the co-ordination of body and mine in fine-tuned. This lead to the increased change in the agility. So practicing power yoga develop to more equickly and faster rhythm develops the lift and hold your entire body's weight constantly and feel energized. Practised power yoga insist and focuses on long and deep breathes that take the oxygen to all parts of the body. The long deep breath indults to develop the breath holding capacity and that helps to reduce the respiratory rate. This study proves that there in a improvement in the physical and physiological parameters due to the power yoga training.

Conclusion

It was concluded that power yoga and pranayama practices had significantly improved on physical variables like leg strength, abdomen strength endurance, agility and leg explosive power. Physiological variables like resting pulse rate and breath holding time. In meditation the physiological undergoes a changes and every cells in the body is filled with more prana(energy). This results in joy, peace, enthusiasm as the level of prana in the body increases flexibility, emotional Boost, Boeffier diet and improved health.

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