



IMPACT OF NORDIC WALKING WITH AND WITHOUT YOGIC PRACTICES ON SELECTED HEALTH RELATED PHYSICAL FITNESS VARIABLES AMONG MIDDLE AGED SEDENTARY MEN

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Abstract:

The purpose of the present study was to investigate the impact of Nordic walking with and without yogic practices on selected health related physical fitness variables among middle aged sedentary men. For these purpose forty five (N=45) middle aged sedentary men were selected from Chennai, Tamilnadu, India. The age of the subject ranged from 35-40 years. The subjects were randomly divided into three equal groups of fifteen (n=15) each and assigned to experimental group I, experimental group II and control group. In a twelve weeks, the experimental group I underwent Nordic walking, experimental group II underwent Nordic walking with yogic practices and control group not given any special training. The criterion variable selected were muscular endurance and flexibility. The selected subject were tested on criterion variables at prior to before and after the training period. Analysis of covariance (ANCOVA) were used to test the significance. In case of significance of mean differences observed, to find out which pair of group mean was significant among other the Scheffe's post-hoc test was applied. The result of the study reveals that there was significant improvement on selected criterion variables due to Nordic walking with and without yogic practices on middle aged sedentary men. Experimental Group II would have significant improvement on selected health related fitness variables than Experimental Group I and control group.

Key Words: Nordic Walking, Yogic Practices, Muscular Endurance & Flexibility

1. Introduction:

Nordic walking is a total body version of walking that can be enjoyed both by non-athletes as a health promoting physical activity, and by athletes as a sport. The activity is performed with specially designed walking poles similar to ski poles. Gill S. (2014).

The practice of yoga is an art and science, dedicated to creating union between the body, mind and spirit. Its objective is to assist the practitioner in using the breath and body to foster an awareness of ourselves as individualized beings intimately connected to the unified whole of creation. In short, it is about making balance and creating equanimity so as to live in peace, good health and harmony with the greater whole. This art of right living was perfected and practiced in India thousands of years ago and the foundations of yoga philosophy were written down in The Yoga Sutra of Patanjali, approximately 200 AD. This sacred text describes the inner workings of the mind and provides an eight-step blueprint for controlling its restlessness so as to enjoying lasting peace (Eugene, 1997).

As one practices asana it encourages a calming of the brain, in this way it winds up noticeably both an arrangement for reflection and a contemplation adequate all by itself. Discharging to the stream and inward quality that one creates realizes a significant establishing deep sense of being in the body. The physicality of the yoga stances turns into a vehicle to grow the awareness that swarms our each part of our body. (Swami Sivanandha, 2001).

Pranayama, or breathing technique, is very important in yoga. It goes hand in hand with the asana or pose. In the Yoga Sutra, the practices of pranayama and asana are considered to be the highest form of purification and self-discipline for the mind and the body, respectively. The practices produce the actual physical sensation of heat called "tapas" or "the inner fire of purification". It is taught that this heat is part of the process of purifying the nadis or subtle nerve channels of the body. (Joshi, 2001).

Nabou Takeshima. et al., (2013) conducted a study on effect of Nordic walking compared to conventional walking and band based resistance exercise on fitness in older adults. Sixty five older adults are selected for the study. The results of the study proved that Nordic walking may improve upper body strength, cardio vascular endurance and flexibility. Bal, B.S and Kaur P.J. (2009), conducted a study on effect of selected Asanas in hatha yoga on agility and flexibility. Thirty male students are participated this study. The result of the study showed that yogic practices may improve both agility and flexibility of the selected subjects. Mark D. et al., (2001), conducted a study on effect of hatha yoga practice on the health related aspects of physical fitness. The healthy untrained volunteers 18-27 years, were selected as subjects. The finding regular hatha yoga practices can elicit improvements in the health related physical fitness aspects.

2. Materials and Methods:

2.1 Subjects and Variables:

To achieve the purpose, forty five (N=45) middle aged sedentary men were purposively selected from Chennai district, Tamilnadu, India. The age of these subjects ranged from 35 to 40 years, the selected subjects gave willingness to participate in this study. The selected subjects equally divided into three equal groups. Experimental Group I (Nordic Walking, n=15), experimental group II (Nordic walking with yogic practices, n=15) and Group III (Control group, n=15). The criterion variable selected were muscular endurance and flexibility. Bent knee sit up test was using to measure muscular endurance and Flexibility was measured using sit and reach test of sedentary men.

2.2 Training Intervention:

The Nordic walking designed for period of twelve weeks, three days per week, each session lasting for 90 minutes. Both experiment group I and II underwent Nordic walking training schedule. In additional experimental group II also underwent yogic practices. The yogic practices meted out 40 minutes either before or after the Nordic walking practice. The yogic practice include Asanas and Pranayama.

2.3 Statistical Analysis:

The analysis of covariance was used to test the adjusted mean differences among the groups. If the adjusted post test results was significant then the Scheffe's post hoc test was used to find out the paired mean significance difference.

3. Results and Discussion:

Table 1: Analysis of Covariance of Means of two Experimental Groups in Muscular Endurance

Test	Exp 1	EXP 2	CG	SV	SS	DF	MSQ	F Ratio
Pre Test	18.20	18.26	18.46	Between	179.067	2	.289	.935
				Within	15268.000	42	4.263	
Post Test	20.40	22.00	18.93	Between	70.578	2	35.289	6.31*
				Within	234.533	42	5.584	
Adj. Post Test	20.52	22.05	18.77	Between	80.681	2	40.341	54.70*
				Within	30.235	41	.737	

Table F ratio at 0.05 level confidence for df (2, 42) = 2.59, (2, 41) = 2.60

Table 1 shows that the adjusted post test mean on muscular endurance of experimental group I, II and Control group are 20.52, 22.05 and 18.77 respectively. The obtained F ratio value 54.70* for adjusted post test data is greater than the required table value 2.60 for significant at 0.05 level. It reveals that there was significant differences among the groups on muscular endurance as a results of Nordic walking with and without yogic practices. The post hoc test was applied to find out the significant paired mean difference.

Table 2: Scheffe's Post hoc test Analysis on MuscularEndurance of Three Groups

EXP I	EXP II	CG	MD	CI
20.52	22.05	-	2.00*	0.71
20.52	-	18.77	1.75*	0.71
-	22.05	18.77	3.75*	0.71

Table II shows that the ordered weighted mean difference of Scheffe's post hoc test values on muscular endurance of Nordic walking group, Nordic walking and yogic practicing group and control group. The mean differences of muscular endurance is significant at 0.05 level of confidence. There is differences in means between Nordic walking group and Nordic walking with yogic practice group, Nordic walking group and control group, Nordic walking with yogic practice group and control group. Compared between three groups, experimental Group II would have significant improvement on selected health related fitness variables than Experimental Group I and control group.

Table 3: Analysis of Covariance of Means of two Experimental Groups in Flexibility

Test	Exp 1	EXP 2	CG	SV	SS	DF	MSQ	F Ratio
Pre Test	17.47	17.40	7.13	Between	.933	2	.467	.162
				Within	121.07	42	2.88	
Post Test	19.93	20.94	17.53	Between	91.60	2	45.80	13.59*
				Within	141.60	42	3.37	
Adj. Post Test	19.80	20.87	17.73	Between	76.21	2	38.105	54.03*
				Within	28.92	41	.705	

Table F ratio at 0.05 level confidence for df (2, 42) = 2.59, (2, 41) = 2.60

Table I shows that the adjusted post test mean on flexibility of experimental group I, II and Control group are 19.80, 20.87 and 17.73 respectively. The obtained F ratio value 54.03* for adjusted post test data is greater than the required table value 2.60 for significant at 0.05 level. It reveals that there was significant differences among the groups on flexibility as a results of Nordic walking with and without yogic practices. The post hoc test was applied to find out the significant paired mean difference.

Table 4: Ordered Scheffe's Post hoc test Means and Differences between the Means for Flexibility of Three Groups

EXP I	EXP II	CG	MD	CI
19.80	20.87	-	1.07*	0.70
19.80	-	17.73	2.07*	0.70
-	20.87	17.73	3.14*	0.70

Table IV shows that the ordered weighted mean difference of Scheffe's post hoc test values on muscular endurance of Nordic walking group, Nordic walking and yogic practicing group and control group. The mean differences of muscular endurance is significant at 0.05 level of confidence. There is differences in means between Nordic walking group and Nordic walking with yogic practice group, Nordic walking group and control group, Nordic walking with yogic practice group and control group. Compared between three groups, experimental Group II would have significant improvement on selected health related fitness variables than Experimental Group I and control group.

4. Discussions:

The study reveals that the twelve weeks of Nordic walking with and without yogic practices given to the experimental group had a positive effect on the development of their selected health related physical fitness variables. Hence this improvement can be attributed to the systemic training given to the subjects. The results of Muscular endurance and flexibility shows that the obtained F ratio values 54.70* and 54.03* respectively for adjusted post test data is greater than the required table value 2.60 for significant at 0.05 level.

It reveals that there was significant differences among the groups on muscular endurance and flexibility as a results of Nordic walking with and without yogic practices. The post hoc test was applied to find out the significant paired mean differences. There is differences in means between Nordic walking group and Nordic walking with yogic practice group, Nordic walking group and control group, Nordic walking with yogic practice group and control group. –Ross A, et al. (2010), Priya K, et al., (2011) and Frits T, (2011).

The study proved that there was significant improvement on muscular endurance and flexibility of sedentary men due to twelve weeks Nordic walking practice with and without yogic practices. Hence the first and second framed hypothesis was accepted. And also it reveals that, compared between group, group II would be better than other groups. Hence the third framed hypothesis was accepted.

5. Conclusions:

- ✓ There was a significant improvement on muscular endurance and flexibility of the subjects who underwent twelve weeks of Nordic walking.
- ✓ There was a significant improvement on muscular endurance and flexibility of the subjects who underwent twelve weeks of Nordic walking with yoga practicing.
- ✓ Compared between groups, Nordic walking with yoga practices group would have better significant improvement on flexibility and muscular endurance than Nordic walking training group and control group.

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