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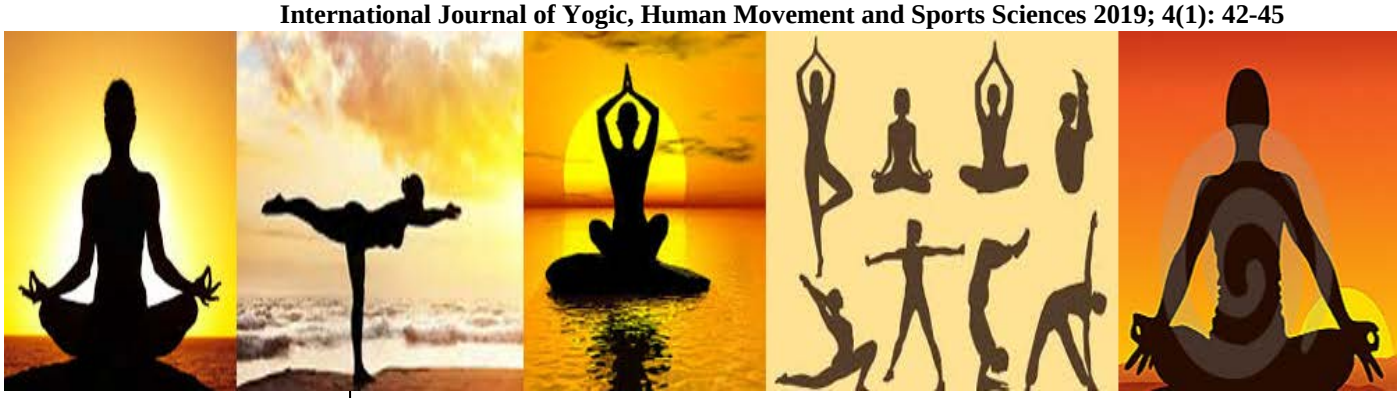

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4-weeks of Anulom Vilom pranayama training on aerobic fitness of young Girls of Guru Nanak Dev University, Amritsar

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Abstract
The present study investigated the effects of 4-weeks Anulom Vilom pranayama program on aerobic fitness of young Girls. For this study thirty, university level girls of Department of Physical Education (T), Guru Nanak Dev University, Amritsar between the age group of 21 - 26 years volunteered to participate in the study. The subjects were purposively assigned into two groups: Group-A: Experimental (n_1 = 15), Group-B: Control (n_2 = 15). Experimental group was subjected to 4-weeks of Anulom Vilom Pranayama. All the subjects were informed about the objective and protocol of the study. The Mean and Standard Deviation values of aerobic fitness of pre-test and post-test of experimental group was 33.6067 ± 1.8510 and 33.5067 ± 1.8611 respectively. However, the Mean and Standard Deviation values of aerobic fitness of pre-test and post-test of control group were 33.7733 ± 1.6918 and 33.6600 ± 1.7125. In experimental group the observed effect size d is medium, 0.64 and in control group the observed effect size d is large, 0.71 the data does suggest that the differences between pre-test and post-test of aerobic fitness in experimental and control group are statistically significant.

Keywords: Yoga, Anulom Vilom, pranayama, aerobic fitness, girls

Introduction
Yoga, as practiced and taught in India, entered the Western world in the 19th century with the translation of basic yogic texts. Following attendance at the World Parliament of Religions in Chicago in 1893, Swami Vivekananda introduced yoga to the USA. He lectured widely on the practice, founded the Vedanta Society, and authored many books [1]. In the 20th century numerous versions of yoga were developed and taught. Numerous books aided the growth of a yoga practicing community in the USA. In the 1950s, "an almost faddish burst of interest in hatha yoga" occurred in the USA. During the decade, yoga spread through health and beauty salons [2]. In the 1950s and 1960s several important books were published on yogic techniques and then in 1970s yoga rapidly expanded, with the founding of numerous yoga centers and professional associations. Yoga became especially popular among adherents of New Age ideas [3]. Yogic techniques are known to improve one's overall performance and work capacity [4]. Physical fitness not only refers cardiorespiratory fitness and muscular strength, but also coordination and flexibility i.e., the full range of physical qualities which can be understood as an integrated measurement of all functions and structures involved in the performance [5, 6, 7, 8]. In adults, low physical fitness (mainly cardiorespiratory fitness) seems to be a stronger predictor of both cardiovascular and all-cause mortality than any other well-established risk factors [9].

Material and Methods
Participants
Thirty, university level girls of Department of Physical Education (T), Guru Nanak Dev University, Amritsar between the age group of 21 - 26 years volunteered to participate in the study. The subjects were purposively assigned into two groups:

- Group-A: Experimental (n_1 = 15)
- Group-B: Control (n_2 = 15)

Experimental group was subjected to 4-weeks of Anulom Vilom Pranayama. All the subjects were informed about the objective and protocol of the study. The sample size (N=30) was calculated using the G*Power 3.1.9.7 software. A power of 0.80 (1-β err prob) and significance level (α) of 0.05. The Protocol of power analysis is brought forth in at Figure 2

Procedure

PFT Three-Mile Run Test

- Purpose: This test measures aerobic fitness and leg muscles endurance.
- Equipment required: 3-mile flat running course, stopwatch, marker cones, recording sheets.
- Procedure: The aim of this test is to complete the 3-mile course in the shortest possible time. At the start, all marine line up behind the starting line. On the command 'go,' the clock will start, and you will begin running at your own pace. Walking is allowed.
- Scoring: The total time to complete the course is recorded for each participant. For males approximately 1 point is deducted from a hundred for every 10 seconds slower than 18 minutes, for females approximately one point is deducted from a hundred for every 10 seconds slower than 21 minutes.

Statistical Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences for Windows version 16.0 software (SPSS Inc., Chicago, IL). Data is expressed as the mean ± SD. Student t test for paired samples was utilized to compare the means of the pre-test and the post-test. The level of significance was set at 0.05.

Table 1: Distribution and demographics of subjects.

Distribution and Demographics (Mean ± S.D.)			
Variables	**Total (N = 30)**	**Anulom Vilom Pranayama (n_1 = 15)**	**Control Group (n_2 = 15)**
Age (yrs)	23.06±1.28	22.93±1.43	23.2±1.14
Height (cm)	159.26±3.93	159.93±3.86	158.6±4.03
Weight (kg)	56.44±3.37	56.89±3.14	56±3.63

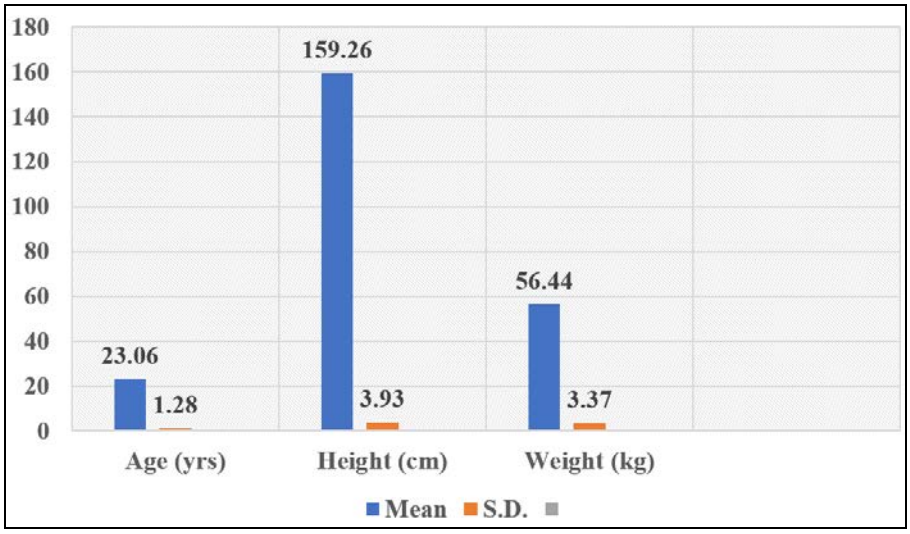

Fig 1: Distribution and demographics of subjects.

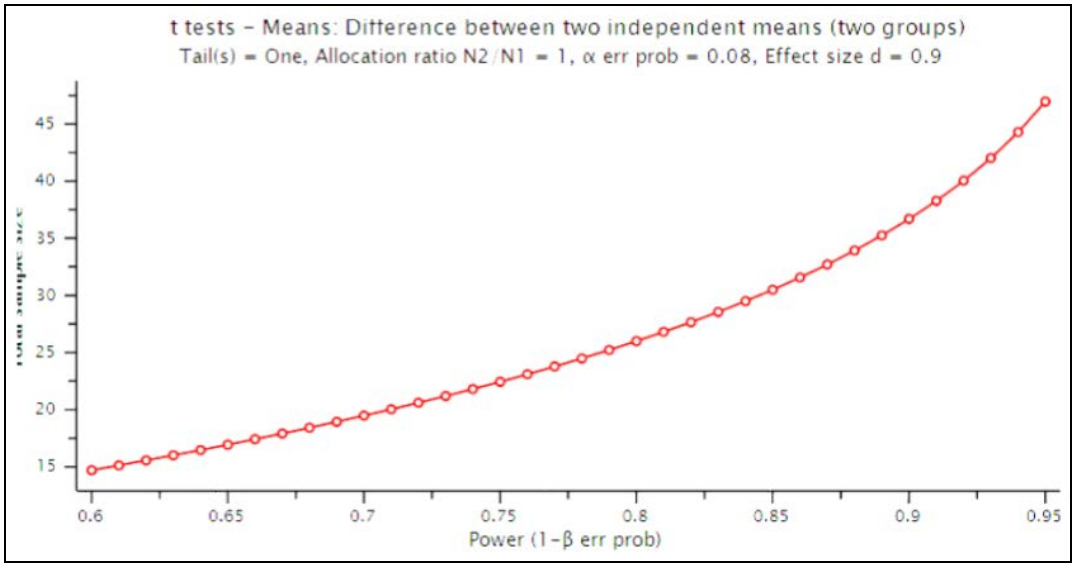

Fig 2: Mean Difference between two dependent means α err prob – 0.05, Effect size dz – 0.5

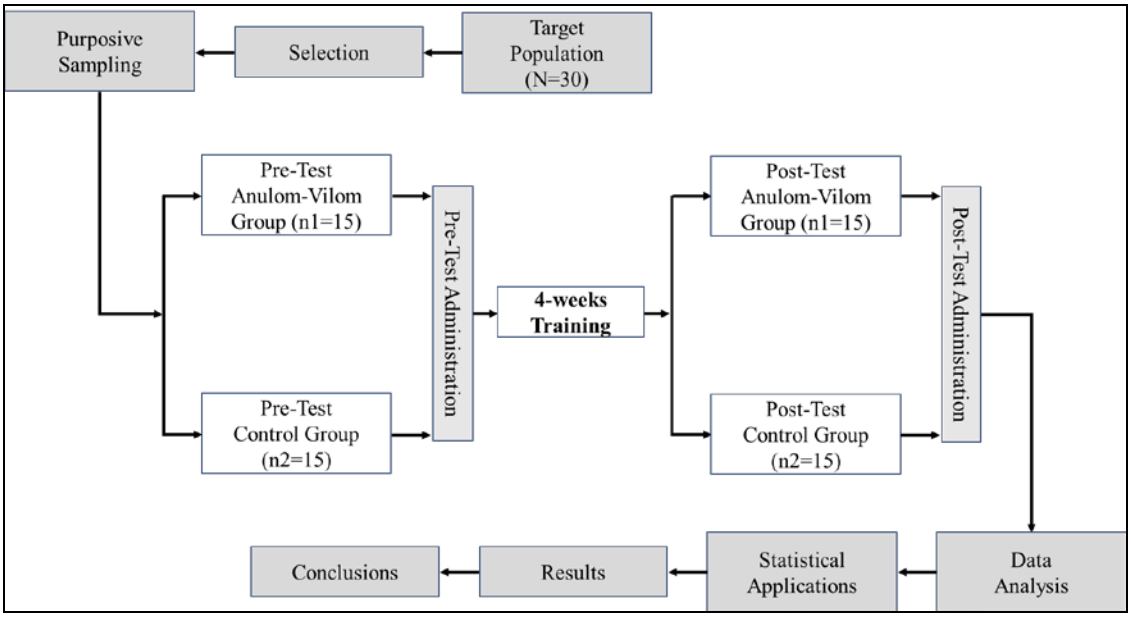

Fig 3: Study flow chart.

Results

Table 2: Descriptive statistics of Anulom Vilom Pranayama (Pre-Test & Post-Test) and Control (Pre-Test & Post-Test) group.

	Anulom Vilom Pranayama (Pre-Test)	**Anulom Vilom Pranayama (Post-Test)**
Sample size	15	15
Arithmetic mean	33.6067	33.5067
95% CI for the mean	32.5816 to 34.6317	32.4760 to 34.5373
Variance	3.4264	3.4635
Standard deviation	1.8510	1.8611
Standard error of the mean	0.4779	0.4805
Mean difference		-0.1000
Standard deviation of differences		0.1558
Standard error of mean difference		0.04024
95% CI of difference		-0.1863 to -0.01370
Test statistic t		-2.485
Degrees of Freedom (DF)		14
Two-tailed probability		P = 0.0262
	Control (Pre-Test)	**Control (Post-Test)**
Sample size	15	15
Arithmetic mean	33.7733	33.6600
95% CI for the mean	32.8365 to 34.7102	32.7117 to 34.6083
Variance	2.8621	2.9326
Standard deviation	1.6918	1.7125
Standard error of the mean	0.4368	0.4422
Mean difference		-0.1133
Standard deviation of differences		0.1598
Standard error of mean difference		0.04125
95% CI of difference		-0.2018 to -0.02486
Test statistic t		-2.747
Degrees of Freedom (DF)		14
Two-tailed probability		P = 0.0157

Aerobic Fitness

Table-2 shows the Mean and Standard Deviation values of aerobic fitness of pre-test and post-test of experimental group was 33.6067 ± 1.8510 and 33.5067 ± 1.8611 respectively. However, the Mean and Standard Deviation values of aerobic fitness of pre-test and post-test of control group were 33.7733 ± 1.6918 and 33.6600 ± 1.7125. In experimental group the observed effect size d is medium, 0.64 and in control group the observed effect size d is large, 0.71 the data does suggest that the differences between pre-test and post-test of aerobic fitness in experimental and control group are statistically significant.

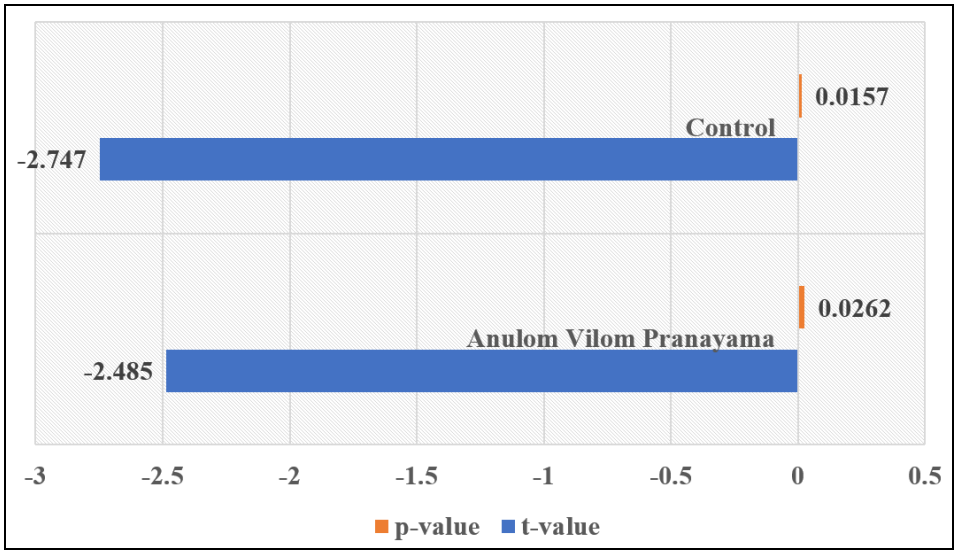

Fig 4: t-value and p-value of aerobic fitness of experimental and control groups.

References

1. Scott B. Exercise or Religious Practice? The Watchman Expositor 2001;18:5-13.
2. Robert AF. Reality Check: Renowned Buddhist scholar Robert Thurman reflects on the Yoga Sutra and how we can know reality for ourselves. Yoga J 2001, 67-71.
3. Melton GJ. "Yoga" in New Age Encyclopedia. Detroit: Gale Research Inc., 1990, 500-9.
4. Chandra AK, Sengupta P, Goswami H, Sarkar M. Effects of Dietary Magnesium on Testicular Histology, Steroidogenesis, Spermatogenesis and Oxidative Stress Markers in adult rats. Ind J Exp Biol.
5. Sengupta P, Sahoo S. Evaluation of Health Status of the Fishers: Prediction of Cardiovascular Fitness and Anaerobic Power. World J Life Sci Med Res 2011;1:25-30.
6. Sengupta P. Assessment of Physical Fitness Status of Young Sikkimese Residing in High Hill Temperate Regions of Eastern Sikkim. Asian J Med Sci 2012;2:169-74.
7. Sengupta P. Environmental and Occupational Exposure of Metals and their role in Male Reproductive Functions. Drug Chem Toxicol.
8. Sengupta P, Sahoo S. A Fitness Assessment Study among Young Fishermen of Coastal Areas of East Midnapore District of West Bengal, India. Southeast Asia J Pub Heal 2011;1:6.
9. Chaudhuri P, Sengupta P, Ganguli S, Halder RP. Emerging Trend of Gym Practice and Its Consequence over Physical and Physiological Fitness. Biol Exer 2012;8:49-58.