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An Exploratory Study of Low Back Pain among Yoga Practitioners and Non Yoga Practitioners in Relation to Anger and Heart Rate

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Abstract

The purpose of the study is to investigate an exploratory study of low back pain among the yoga practitioners and non yoga practitioners in relation to specific life style factors. The subjects are equally assigned to random sampling procedure into two equal groups, i.e., the experimental group and control group. The experimental group does the practices in yogic practices. The control group does not practice the any kind of yogic practices for the duration of the training programme of twelve weeks. The training is given in alternate days in a week. Each session is scheduled for 60 minutes. The anger and heart rate is measured before and after the experimentation using the standardized test and standardized questionnaire. The data are analyzed by Analysis of Covariance (ANCOVA) and it is concluded that the selected yogic practices group than the control group has significant (P < 0.05) effect on the anger and heart rate level.

Keywords: Yogic practices, anger and heart rate, low back pain.

Introduction

Salutations to the glorious (original) guru, Sri Adinath, who instructed the knowledge of hatha yoga which shines forth as a stairway for those who whish to ascend to the highest stage of yoga, raja yoga."

Modern Yoga is said to have begun the Parliament of Religions in Chicago, 1893. During this meeting the young Swami Vivekananda from India made a deep impression on the American and he introduced the Yoga. Vivekananda became the most popular members of the Parliament, and he subsequently toured the US giving lectures on Yoga. Many Yoga masters later crossed the ocean and follow his footsteps, spreading Yoga to all corners of the continent. Yoga schools were founded and increasing numbers of people fell in love with the yogic forms of exercise. Many masters also went to Europe but for some reason the reception was not quite warm. Yoga, in the form of Hatha Yoga, debuted in the consciousnesses of the American masses when Russian born Indra Devi, of the called "the first lady of Yoga", opened a Yoga studio at Hollywood in 1947. She taught movie starts like Gloria Swanson, Jennifer Jones and Robert Ryan, as well as educating hundreds of Yoga teachers.

During the 1950s one of the foremost Yoga teachers, Selvarajan Yesudian, wrote the book "Sport and Yoga", and it was through this book Yoga entered the world of sports. This book has been translated into more than fourteen languages and has sold more than half a million copies. Today many athletes and sports teams that have incorporated Yoga in their injury reducing, strengthening and focus oriented training regimens. One of the most well known examples are the NBA stars of the Chicago Bulls. 1961 Hatha Yoga was presented in an American television by Richard Hittleman, and his book called "The Twenty Eight day Yoga Plan" sold in the millions. In the middle of the 60s, Yoga got a real promotional boost when the Yogi Maharishi Mahesh taught Yoga to the famous pop-stars in the Beatles. Many other artists and musicians where influenced to take up Yoga as well. During the 60s and 70s Yoga became a way of life for many people living on the American west coast.

On an interesting side note, Dalai Lama is a great yogi from Tibet, representing Buddhism and Tibetan Yoga. He is awarded the Nobel prize for peace and has inspired many westerners to learn more about Buddhism and Yoga. Yoga' -the very word radiates peace and tranquility. This feeling probably stems from the etymology of the word. The word Yoga is derived from the Sanskrit word 'Yuj' which essentially means "*to join or unite*". The union referred to is that of the individual self uniting with Cosmic Consciousness or the Universal Spirit. Yoga is a means to achieving the goal. Born in India, almost 26,000 years ago, Yoga is believed to have evolved during the period of the 'Sat Yuga', also called as the Golden age. This period is known as a time of everlasting peace and abundant blessings, filled with seekers of the Eternal Truth. That is

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why, probably, even today people associate yoga with sages and hermits.

It was not until the discovery of the Indus- valley civilization, the largest civilization that knowledge about the origin of Yoga surfaced. Excavations give evidence of yoga's existence during this period; yogi -like figures engraved on soapstone seals have been unearthed. In fact, it was the Aryans, migrating from the north- west, who were instrumental in discovering yoga.

Yogic exercises recharge the body with cosmic energy. This facilitates

- Attainment of perfect equilibrium and harmony
- Promotes self- healing.
- Removes negative blocks from the mind and toxins from the body
- Enhances Personal power
- Increases self-awareness
- Helps in attention focus and concentration, especially important for children
- Reduces stress and tension in the physical body by activating the parasympathetic nervous system.

According to Patanjali, one can attain this (the individual self with the Supreme One) union by controlling and eliminating the ever- arising 'vrittis' or modifications of the mind. He also suggests that the mind, in turn, can be controlled through the right kind of discipline and training. Patanjali says that there are basic obstacles pervading the mind that are not conducive to yoga practice. He divides these obstacles into two groups:

1. Antarayas (intruders in the path of yoga)
2. Viksepasahabhuvah (co-existing with mental distraction)

There are nine Antarayas.

1. Vyadhi (physical disease)
2. Styana (mental laziness)
3. Samsaya (doubt)
4. Pramada (heedlessness)
5. Alasya (physical laziness)
6. Avirati (detachment)
7. Bhrantidarsana (false perception)
8. Alabdha- bhumikatva (non-attainment of yogic states)
9. Anavasthitatva (falling away from yogic states attained)

The above obstacles blocks the flow of prana (life force) in Astral body (koshas and chakras) leads to ATHI. This ATHI (stress) spreads from one place and occupies the entire body known as Vyathi (diseases). If stress occurs in the Astral body (sukshuma sarira) it reflects in the physical body (sthoola sarira). So as the result the entire body becomes prey to deadly diseases and disorder.

Aim of the Study

The aim and objective of the study is to investigate an exploratory study of low back pain among the yoga practitioners and non yoga practitioners in relation to specific life style factors.

Review of Related Literature

Swoboda B, et.al (1999), conducts the study on Collagen type VI content in healthy and arthritis knee joint cartilage at Abteilung für Orthopädische Rheumatologie, Orthopädische Klinik, Universität Erlangen-Nürnberg. They select 148 histologically normal and 117 osteoarthritic cartilage samples from 18 different localisations of human knee joints. It is quantified in cartilage extracts using an inhibition-ELISA. In normal cartilage the average content of collagen type VI is 0.48 per cent of total collagens. The statistical analysis shows the significant differences between normal femoral, tibial or retropatellar cartilage samples. Therefore, normal and osteoarthritic samples from different localizations have to be compared separately. A significant increase of collagen type VI is already found in the early osteoarthritic lesions. As a result statistically significant increase of collagen type VI in osteoarthritic cartilage, the range of concentrations are found in normal.

Saad AA, Ashcroft DM (2009), conducts the study on Efficacy and safety of anti-TNF therapies in psoriatic arthritis at School of Pharmacy and Pharmaceutical Sciences and Arthritis Research Campaign (ARC) Epidemiology Unit, University of Manchester, Manchester, UK. The study includes PsA patients (n = 596) registered with the British Society for Rheumatology Biologics Register (BSRBR). Response is assessed using the European League against Rheumatism (EULAR) improvement criteria. Univariate and multivariate logistic regression models are developed to examine the factors associated with EULAR response and disease remission using a range of covariates. Poisson regression is used to calculate the incidence rate ratios (IRRs) for serious adverse events (SAEs) vs seronegative RA controls receiving DMARDs, adjusting for age, sex and baseline co-morbidity. At baseline, the mean (s.d.) DAS-28 is 6.4 (5.6). Of the patients, 70.3% are EULAR responders at 12 months. At 6 months, older patients [adjusted odds ratio (OR) 0.97 per year; 95% CI 0.95, 0.99], females (adjusted OR 0.51; 95% CI 0.34, 0.78) and patients on corticosteroids (adjusted OR 0.45; 95% CI 0.28, 0.72) are less likely to achieve a EULAR response. Over 1776.2 person-years of follow-up (median 3.07 per person), the IRR of SAEs is compared with controls is not increased (0.9; 95% CI 0.8, 1.3).As a result Anti-TNF therapies have a good response rate in PsA, and have an adverse event profile similar to that seen in a control cohort of patients with the seronegative arthritis receiving DMARD therapy.

Methods and Materials

The sample for the present study consists of 40 low back pain sufferers from Chennai city. The subjects are selected using random sampling method. Their age ranged from 30 to 40 years. They are divided into two groups' namely Experimental group and Control group (n=40), and The Clinical Anger Scale**:** Construct Measurement, Reliability, and Validity: William E. Snell, Jr., Scott Gum, Roger L. Shuck, Jo A. Mosley, and Tamara L. Hite. Southeast Missouri State University, and

heart rate measurement is administrated by stop watch and stethoscope equipment. Experimental group is under the practice of yogic practices for the period of 12 weeks all the morning at 6.30 to 8.00 for the period of 12 weeks . The training programme is administered for 60 to 90 minutes per session. The control group does not engage in any special activities. The load is fixed based on the pilot study. The pre test and post test are taken before and after the experimental training programme. Analysis of covariance is used as a test of significance.

Experimental Group: Yogic Practices

YOGIC PRACTICES
(group-I)

- Loosening exercises:
- Asanas:

1. *Ardhakati chakrasana*
2. *Ardhachakraasana*
3. *Parivartha trikonaasana*
4. *Bhujangaasana*
5. *Salabhaasana*
6. *Vakrasana*
7. *Ustraasana*

- Relaxation:
- Meditation

- Pain Management

Meditation

Group II: Control Group (No Practice)

Results

The data pertaining to the variables under the study is examined by the analysis of covariance for each criterion variables separately in order to determine the differences, any between the groups at the different stages.

Table 1
Analysis of covariance for pre and post tests data on anger of yogic practices group and control group

	YOGIC PRACTICES GROUP	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	38.80	37.10	Between	28.90	1	28.90	0.21
			Within	5285.00	38	139.08	
Post Test Mean	28.20	40.80	Between	1587.60	1	1587.60	23.40*
			Within	2578.40	38	67.85	
Adjusted Mean	27.81	41.19	Between	1778.40	1	1778.40	
			Within	1488.34	37	40.23	44.21*
Mean Diff	-10.60	3.70					

*significant.
Table value for df 1 and 38 is 3.21 Table value for df 1and 37 is 3.22.
The obtained adjusted mean values are presented through the bar diagram in the figure I.

Discussions on the Findings of Anger

Taking into consideration of the pretest means and posttest means the adjusted posttest means are determined and analysis of covariance is done and the obtained F value 44.21 is greater than the required value of 3.22. And hence it is accepted that the Yogic practices significantly improve (decreased) the anger level of the yoga practitioners. The post hoc analysis of the obtained ordered adjusted means prove that there is significant differences existed between the Yogic practices group and Control group on pain level. This prove that due to 12 weeks of Yogic practices the anger level is significantly improved (decreased) among the yoga practitioners.

Table 2

Analysis of covariance for pre and post tests data on heart rate of yogic practices group and control group

	YOGIC PRACTICES GROUP	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	80.90	80.40	Between	2.50	1	2.50	0.35
			Within	270.60	38	7.12	
Post Test Mean	75.80	80.65	Between	235.23	1	235.23	19.11*
			Within	467.75	38	12.31	
Adjusted Mean	75.66	80.79	Between	260.36	1	260.36	
			Within	385.27	37	10.41	25.00*
Mean Diff	5.10	0.25					

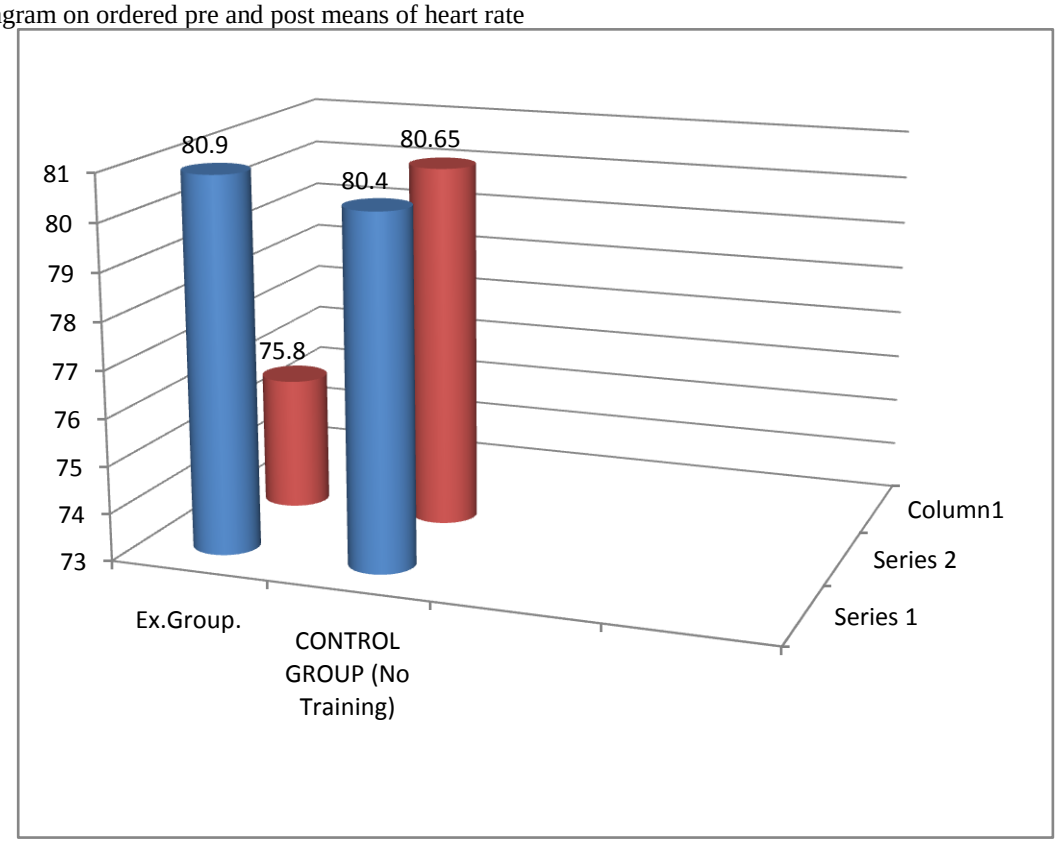
*significant.

Table value for df 1 and 38 is 3.21 Table value for df 1and 37 is 3.22.

The obtained adjusted mean values are presented through bar diagram in the figure II.

Figure I

Bar diagram on ordered pre and post means of heart rate



Discussions on the Findings of Heart Rate

Taking into consideration of the pretest means and posttest means the adjusted posttest means are determined and analysis of covariance is done and the obtained F value 25.00 is greater than the required value of 3.22. And hence it is accepted that the Yogic practices significantly improve (decreased) the heart rate level of the yoga practitioners.

The post hoc analysis of the obtained ordered adjusted means prove that there is significant differences existed between the Yogic practices group and Control group on heart rate level. This proves that due to 12 weeks of Yogic practices the heart rate level is significantly improved (decreased) among the yoga practitioners.

Conclusion of the Research

The analysis of co-variance of anger and heart rate level indicate that the experimental group I (yogic practices), and group II (Control group), are significantly improved (decreased) the anger and heart rate level. It may be due to the effect of Yogic practices. The analysis of co-variance of anger and heart rate indicate that the experimental group I (yogic practices) and group II (Control group), significantly improved (decreased) the anger and heart rate level. It may be due to the effect of Yogic practices. The findings of the study show that the experimental group I (Suryanamaskar) has improvement and also Flexibility more flexibility in the experimental group I (yogic practices) which states everything in life requires balance. Yogic practices on its own is a good step toward a healthy life style. However, as an individual, it is important to malaise that a person need to work on their body as well as his mind. The yogic practices can be used not only as part of a program to improve (decreased) the anger and heart rate level, but also as a way to assist in attaining other goals.

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