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Research Article

College Women's Muscular Strength And Flexibility Of The Lower Back And Hamstring Muscles As An Impact Of Fascial Stretch Training

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ABSTRACT

The study sought to ascertain the effects of Fascial stretch training on the flexibility and strength of the hamstring and lower back muscles in college women. This was achieved by selecting forty female students from St. Thomas College (Autonomous) Thrissure as study subjects. They are between the ages of 17 and 25, based on their college records. Two equal groups of subjects were formed: one for the experiment and one for the control. In addition to their regular routine, the experimental group underwent an eight-week program of facial stretch training exercises, while the control group was not allowed to participate in any training activities. Physical attributes such as the following were selected as dependent variables: Flexibility and strength of the lower back and hamstring muscles. By examining the "t" test, ascertain whether the experimental and control groups differed significantly on the selected variable. The investigation's findings demonstrated a significant difference between the experimental and control groups. The dependent variables of the preferred experimental groups also demonstrated a significant improvement.

Keywords: Fascial Stretch Training , Muscular Strength and Hip Flexibility.

INTRODUCTION

A type of assisted stretching called Fascial Stretch Training or Fascial Stretch Therapy (FST) targets the Fascial system, which is the connective tissue that envelops muscles, bones, and joints. Flexibility, muscle strength, joint mobility, recovery, and injury prevention are the things it seeks to enhance. Christopher Frederick and Ann Frederick (2006).

Fascial Stretch Therapy, sometimes referred to as Fascial Stretch Training (FST), is a In contrast to conventional massage treatment, it targets the fascial network rather than specific muscles to release limitations. Through gentle fascial manipulation and stretching, FST seeks to enhance general body function, mobility, and flexibility. The intricate web of connective tissue that envelops and sustains the body's structures is the goal of FST. FST takes a holistic approach to treating fascial system limitations, which can affect several different parts of the body. FST treats the fascial system as a whole, frequently incorporating stretching and traction, in contrast to typical massage, which frequently concentrates on specific muscles.. In conclusion, fascial tension release therapy (FST) is a specialist approach that aims to enhance general body function, mobility, and flexibility. Targeting the entire fascial system as opposed to specific muscles sets it apart from regular massage. (M. Alam et al. 2018)

THEORETICAL FRAMEWORK

The capacity of a muscle or group of muscles to sustain repeated contractions over time is known as muscular endurance, and it is a crucial aspect of general fitness, particularly for women. Its significance encompasses quality of life, long-term health, and daily functioning. American College of Sports Medicine (ACSM)

Muscular endurance is necessary for everyday actions that frequently need persistent muscle activity rather than brief power spikes, such as lifting, walking, climbing stairs, and carrying children. In particular, the lower back and knees are major issue areas for women, and strong, long-lasting muscles assist stabilize joints and lessen the risk of musculoskeletal injuries. Maintaining excellent posture and spinal health requires endurance in the back and core muscles, which is especially crucial as one ages or becomes pregnant.

Training for muscular endurance enhances glucose metabolism, promotes weight reduction, and lowers risk factors for metabolic syndrome, which is a disorder that is more prevalent in postmenopausal women. Osteoporosis, which disproportionately affects women, can be prevented by engaging in resistance and endurance workouts, which assist preserve bone density. American College of Sports Medicine (ACSM)
The term "lower back flexibility" describes the range of motion that the muscles, tendons, and ligaments in the lumbar spine and its surrounding regions may achieve. For women, this flexibility is particularly crucial because of lifestyle, work, and physiological considerations. ACSM (American College of Sports Medicine).
Bending, lifting, and twisting are common tasks for women, whether they are part of their jobs, domestic chores, or caregiving responsibilities. The comfort and safety of these activities are enhanced by adequate lower back flexibility. Lower back discomfort is more common in women who are pregnant, have sedentary jobs, or experience hormonal changes (such as during menstruation and menopause). Increased lumbar flexibility lessens spinal strain and muscular stiffness. Better alignment and posture are facilitated by lower back flexibility, which can help avoid compensatory motions that cause pain or injury. As we mature, we become less flexible. Older women who maintain their lower back mobility are better able to carry out everyday duties and maintain their independence. Hassan, B. S., & Abdel-Rahman, T. A. (2011).
Due to hormonal changes or sedentary work, many women suffer from chronic tightness in the posterior chain or lower back. FST relieves that stress. More joint mobility and muscular extensibility are made possible by FST's gentle stretching of the fascia and surrounding muscles, which is particularly beneficial for the hamstrings, lower back, and hips. Chaouachi, A., and D. G. Behm (2011)
FST enhances neuromuscular transmission by eliminating fascial limitations and increasing joint mobility. During strength training, this enables muscles to contract more effectively and efficiently. By enhancing the body's structural balance and alignment, FST can help women execute strength training with better form and less chance of compensatory, which results in bigger improvements. R. Schleip and associates (2012).

RESEARCH DESIGN

Purposive sampling and a control group design before and after the test were used in this investigation. After being split into two groups at random, the participants underwent an 8-week organized training program. Assessments of the lower back and hamstring muscles' strength and flexibility were done before and after exercise. To identify significant differences between training groups, data were examined using the T-test.
The research design framework is shown in Table I, which also details the training protocols that were given to each group, the length and frequency of training sessions, and the evolution of training loads throughout the study period.

Groups	Treatment
Experiment 1	Facial Stretch Training
Experiment 2	Control Group

Training parameter	Details
Training Duration	45-60 Minutes
Training Sessions per Week	6 days per week
Total Length of Training	12 weeks
Training Load Progression	FST- : Started with 50% and increase 10% after 2 weeks

TABLE I: RESEARCH DESIGN STRUCTURE

PARTICIPANTS AS WELL AS GROUP ASSIGNMENT

Two experimental groups were randomly selected from among the participants. Both the Control Group (CT) and the Facial Stretch Training (FST) groups received high-intensity FST training, while the Control group received no treatment.

METHODS OF TRAINING

Warm-up, instructional phase, main training session, cool-down phase, and correction and clarification segment to guarantee proper exercise execution were all included in each 45–60 minute training session. Over the course of ten weeks, training sessions were held in the evenings six days a week. To maximize physiological adaptation and performance improvement, progressive overload changes were made every three weeks.

ASSESSMENT AND STATISTICAL ANALYSIS

To evaluate the effectiveness of the training therapies, pre-test and post-test results were collected from each group. This experimental method has been widely employed in sports performance research to investigate the effects of specific training modalities on biomotor components. The purpose of the study was to ascertain the effects of face stretch training on the flexibility and strength of the hamstring and lower back muscles in college women. To achieve this, 40 female students from St. Thomas College (Autonomous)

Thrissure were selected as study subjects. Their college records show that they are in the 17–25 age range. Two equal groups were formed from the subjects: one for the experiment and one for the control. During an eight-week period, the experimental group performed facial stretch training exercises in addition to their regular routine, while the control group was not allowed to participate in any training activities. Physical traits such as lower back and hamstring muscular strength and flexibility were selected as dependent variables.

METHODOLOGY

PARTICIPANTS

A total of 40 college Women Students from St. Thomas College (Autonomous) Thrissur were selected. Participants were randomly assigned to four equal groups (n=20 per group).

TABLE II: SELECTION OF TESTS

Variables	Test / Method / Instruments	Unit of measurement
Muscular Strength	Bend Knee Sit ups	Numbers
Flexibility of Lower back and Hamstring Muscle	Sit and Reach	Centimetre

STATISTICAL ANALYSIS

In order to identify significant changes between training groups, the pre- and post-test results were analyzed using IBM SPSS 27.

TABLE III COMPUTATION OF MEAN STANDARD ERROR OF THE DIFFERENCE BETWEEN THE MEAN, DIFFERENCE BETWEEN THE MEAN AND OBTAINED 'T' RATIO OF EXPERIMENTAL GROUP MUSCULAR STRENGTH TEST

SAMPLE	TEST NO	MEAN	DM	Dm	Sig
EXPERIMENTAL GROUP	PRE TEST	16.3	1.72	3.55	0.004*
	POST TEST	19.85			

The mean score of muscular strength of experimental group are 16.3 and 19.85 respectively. As the significant value 0.004* Shows a positivity . Table III shows that there would be a significantly difference between experimental group pre-test and post-test.

TABLE IV COMPUTATION OF MEAN STANDARD ERROR OF THE DIFFERENCE BETWEEN THE MEAN, DIFFERENCE BETWEEN THE MEAN AND OBTAINED 'T' RATIO OF CONTROL GROUP MUSCULAR STRENGTH TEST

SAMPLE	TEST NO	MEAN	DM	Dm	Sig
CONTROL GROUP	PRE TEST	17.85	1.82	0.90	0.009
	POST TEST	18.75			

The mean score of muscular strength between experimental group are 17.85 and 18.75 respectively. As the significant value of 0.009 shows a negative. Table IV shows that there would not be a significantly difference between control group pre-test and post-test.

Bar Diagram Showing the Difference of Pre-Test And Post-Test in Bent-knee Sit Ups(strength) Performance Of Experimental And Control Group

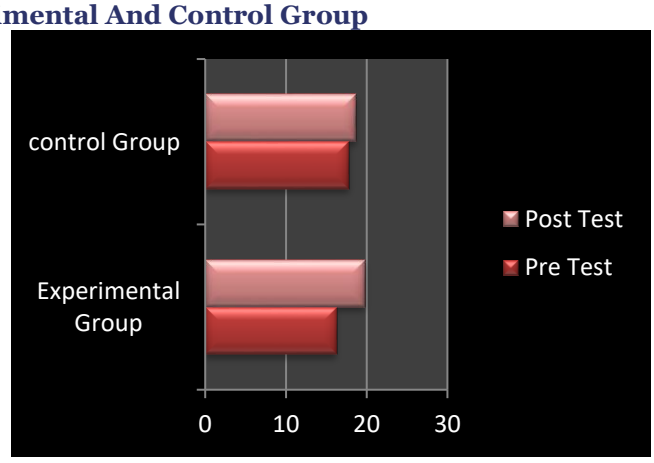


TABLE V COMPUTATION OF MEAN STANDARD AND ERROR OF THE DIFFERENCE BETWEEN THE MEAN, DIFFERENCE BETWEEN THE MEAN AND OBTAINED 'T' RATIO OF EXPERIMENTAL GROUP HIP FLEXIBILITY TEST

SAMPLE	TEST NO	MEAN	DM	Dm	Sig
EXPERIMENTAL GROUP	PRE TEST	16.24	0.55	2.74	0.003*
	POST TEST	18.98			

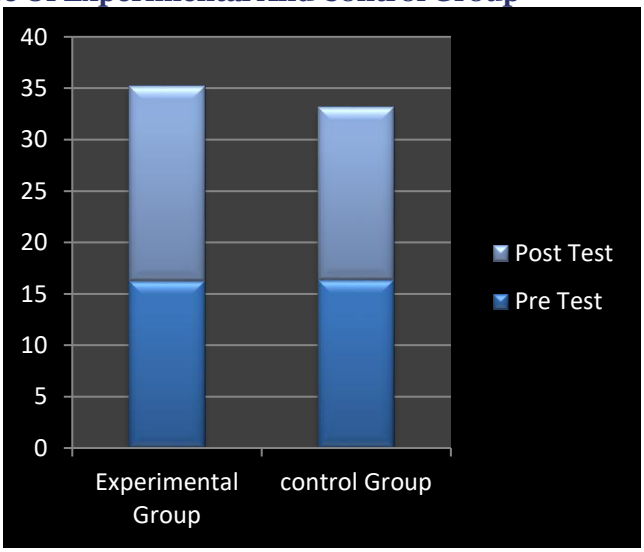
The mean score of muscular strength between experimental group are 16.3 and 19.85 respectively. As the Significant value of 0.003 Connect a high Positivity. Table V shows that there would be a significantly difference between experimental group pre-test and post-test.

TABLE VI COMPUTATION OF MEAN STANDARD ERROR OF THE DIFFERENCE BETWEEN THE MEAN, DIFFERENCE BETWEEN THE MEAN AND OBTAINED 'T' RATIO OF CONTROL GROUP HIP FLEXIBILITY TEST

SAMPLE	TEST NO	MEAN	DM	Dm	Sig
CONTROL GROUP	PRE TEST	16.32	0.40	0.5	0.010
	POST TEST	16.82			

The mean score of Hip flexibility between control group are 16.32 and 16.82 respectively. Table VI shows that there would not be a significantly difference between control group pre-test and post-test with the Significant value of 0.010

Bar Diagram Showing the Difference of Pre-Test And Post-Test in sit and reach test (flexibility) Performance Of Experimental And Control Group



DISCUSSION ON FINDINGS

The researcher looked at how face stretch training improved the flexibility and strength of the hamstring and lower back muscles in college-level women's students at S. Thomas College (Autonomous) in Thrissur. The findings generally corroborate the hypothesis that FST significantly impacted a few bio motor components in female college students. According to the study, the strength, endurance, and flexibility of the lower back and hamstring muscles have changed significantly.

REORGANIZATION

Our sincere gratitude is extended to St. Thomas College (Autonomous) Thrissur for supplying the research project's subjects and support. Our sincere appreciation goes out to the faculty, coaching staff, and physical education department of St. Thomas College (Autonomous) Thrissur for their tremendous guidance and expertise during the study process. Our particular thanks go out to the college students who participated in our study. Their commitment, restraint, and enthusiasm allowed the training sessions and data collection to be effectively finished. The accuracy and reliability of our findings were ensured by the work of our statisticians and research assistants, who also deserve praise for their contributions.

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