A STUDY ON EFFECT OF SARTORIUS STRETCH FOR FEMALE COUTURIER

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ABSTRACT

BACKGROUND: A tailor by occupation is a person who makes, repairs, or alters clothing. Due to their prolong work nature they tend to have various musculoskeletal problems such as joint pain, muscular strain, ligament sprain and also postural deviations. The musculoskeletal discomfort across mainly due to two reasons, the working condition and posture demands of the work place. Majority tailors experience pain in upper arms and lower arms pain as they were exposed to high level of repetitive task and stitching. Prolong sitting and repeated pedaling movements' results in pain and discomfort of the lower limb leading to muscular strain. One such muscle that is involved in repetitive strain due to the pedaling activity is the Sartorius muscle, which is also known as tailors muscle. Hence the present study aims the effectiveness of pain reduction by Sartorius muscle stretching exercise in female tailors.**AIM:** To find out the effectiveness of Sartorius stretching in pain reduction **METHODOLOGY: Twenty female tailors from** MSJ tailoring Export Company were taken up for the study. Convenient samplings of subjects were solicited and the subjects were divided into two groups. Group-1 (control group) were subjected to kneeling Sartorius stretch.Group-2 (experimental group) were subjected to standing Sartorius stretching. **OUTCOME MEASURES:** Numerical pain rating scale for pain **RESULTS:** Statistical analysis was done to identify the difference between pre and post test measurements. The two tailed p-value is less than 0.0001 by conventional criteria, this difference is considered to be extremely statistically significant. **CONCLUSION:** The study concludes that patients with adaptive Sartorius shortening can be reduced by Sartorius stretching exercise.**KEY WORDS:** Sartorius stretch. Couturier

INTRODUCTION:

In India, textile industry had its beginning during the initial period of the 20th century. The textile industry is primarily concerned with the production of yarn, designing and manufacturing of the clothing and the distribution. The process of producing complete garment includes spinning the yarns, preparing fabrics, cutting and stitching of the fabric etc. Textile sector includes self employed garment workers or tailors to prepare garment. In India, according to the International Labor Organization, approximately 5.7 million females are involved textile industry. Gangopadhyay and Das (2010) found that the suffered from occupation related discomfort mostly affecting the lower back (98%), knees (85%) and shoulders (77%). Preliminary study among 3millions (2001-2009) Indian tailors population found that 75% reported musculoskeletal symptoms related to work. The main activities performed by the tailors are taking measurement of the customer, cutting of the fabric, stitching of the fabric and finishing of the stitched garment. Tailors substantially face a higher risk of musculoskeletal problem than other workers because the frequency of postural discomfort and inconvenient work posture. Various studies have identified relatively high frequencies of musculoskeletal discomfort among sewing machine operators. The job involves monotonous, highly repetitive tasks performed in a sitting working posture with upper back curved, with repeated pedaling and head bent over the sewing machine. The work is visually demanding and requires a high degree of concentration and accuracy. Tailors sit with their legs crossed while they sew and would have pain along the path of the Sartorius muscle. The Sartorius is the longest muscle in the body. The motion of crossing the legs takes the sartorius through all of its actions, and it remains active and engaged in that position. The sartorius muscle derives its name from the Latin word for tailor, which is sartor. Tailors were known to sit cross-legged on the floor while they worked, emulating the shape of the muscle as well as using one of its functions. Due to the repetitive and continuous pedaling movements and prolong crossing of the legs there is adaptive shortness of Sartorius muscle leading to pain radiating from hip to legs. It is rather disappointing that the tailoring occupation which employs great human potential has not been given appropriate attention by research scholars in particular, to study the adaptive shortening of Sartorius muscles. So, a study was carried out with the aim to find the effectiveness of Sartorius muscle stretching to reduce pain and relieve the adaptive shortening of the Sartorius muscle in female couturier. This high occurrence of musculoskeletal complaints in this occupation is due to the fact that this work involves monotonous, highly repetitive tasks performed in a sitting working posture, with upper back curved and head bend over the sewing machine.

OBJECTIVE OF THE STUDY:

To determine the effectiveness of Sartorius muscle stretch in relieving pain and the adaptive shortening of the muscle.

SUBJECTS AND METHODS:

Twenty female tailors from MSJ tailoring Export Company were taken up for the study depending upon the inclusion and exclusion criteria. A randomized trial was designed which included a control group and an experimental group. Convenient samplings of subjects were solicited and the subjects were divided into two groups.Subjects were n=20 and age range = 20 - 50 years. Group-1 (control group) was subjected to kneeling Sartorius stretch.Group-2 (experimental group) was subjected to standing Sartorius stretching.

Inclusion criteria: Female tailor within the age group of 20-45 yrs and pain present along the course of the Sartorius muscle for at least 3 weeks. NPRS scale of 7 and above were included for the study. **Exclusion criteria**: Infections, tumor, crush injuries,

mal united fracture, muscular insufficiency, deformities, surgery with metal implantation. Pain intensity was measured by means of NPRS scale. All the patients were screened and randomized after finding their suitability as per inclusion and exclusion criteria. An 11-point Numerical Pain Rating Scale (NPRS) where 0 corresponded to "no pain" and 10 corresponded to "worst imaginable pain," was used to measure pain.

METHOD:

The subjects in the control group were given active kneeling stretch for Sartorius muscle along with resisted isometric exercise for quadriceps muscle and for the subjects in the experimental group were given standing Sartorius stretching along with resisted isometric exercise for quadriceps muscle. Pre test values for NPRS will be recorded. The intervention will be given for a period of 2 weeks later on which post test values for pain is recorded. The pre and post values are recorded for statistical analysis.

PROTOCOL:

Group I: Kneeling Stretch along with resisted isometric quadriceps

Step 1

Kneel with one knee on the ground, the other bent at a 90-degree angle in front of you, with that foot flat on the floor. Support yourself against a wall to keep your balance.

Step 2

Keep your spine upright and pelvis in neutral position.

Step 3

Lean forward with your spine still completely upright. push your pelvis forward while still keeping it level. Clenching your buttock muscles while you do this may help you get a feel for the right motion.

Step 4

Hold the stretch for between 10 and 30 seconds, breathing normally as you do so, then slowly release and repeat on the other side. Repeat the stretch between two and five times on each leg, so that you hold the stretch for one minute total on each side.

Stretch- 3sets, hold time- 10 to 30secs

Resisted isometrics- 3sets, 10 repetitions

Group II: Standing Stretch along with resisted isometric quadriceps

Step 1

Stand on your right leg. Support yourself a wall, to keep your balance.

Step 2

Bring your left heel as close to your buttocks as possible. Grasp the left foot in both hands--if possible--or in the left hand to help keep it close to the body.

Step 3

Think of pushing the hips forward without arching your back. You should feel the stretch in the front of your hip and possibly down the inside of your thigh as well.

Step 4

Breathe normally. Hold the stretch for 10 to 30 seconds, then slowly release and repeat on the other side. Repeat the stretch until you've held it for one full minute on each leg.

Stretch- 3sets, hold time- 10 to 30secs

Resisted isometrics- 3sets, 10 repetitions

RESULTS:

The data obtained was tabulated and statistically analyzed. The pre and post test values for the outcome measures of Pain were calculated and compared. Parametric statistical tests, dependent t sample test and unpaired t test were used.

Table.1 PRE INTERVENTION:

No	STATISTICAL MEASUREMENT	EXPERIMENTAL GROUP	CONTROL GROUP
1.	MEAN	8.3	8.5
2.	STANDARD DEVIATION	0.48	0.52

Fig.1 PRE INTERVENTION GRAPHICAL PRESENTATION:

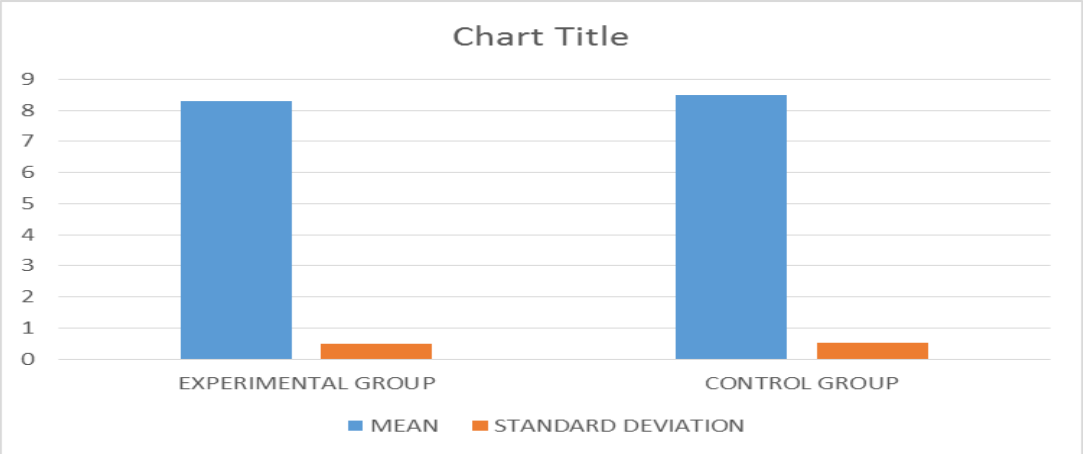
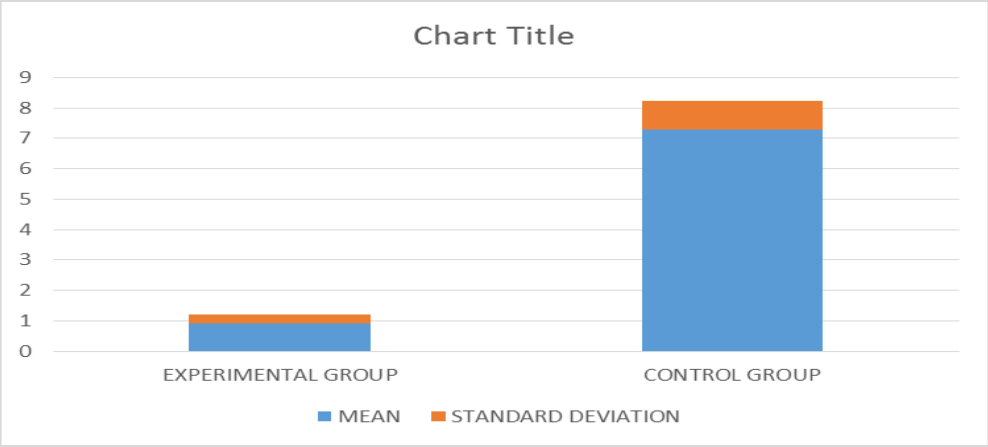


Table.2 POST INTERVENTION

No	STATISTICAL MEASUREMENT	EXPERIMENTAL GROUP	CONTROL GROUP
1.	MEAN	5.4	27.7
2.	STANDARD DEVIATION	1.42	3.46

Fig.2 POST INTERVENTION GRAPHICAL PRESENTATION.



DISCUSSIONS:

Tailoring involves monotonous, highly repetitive tasks which are performed in a sitting working posture obviously puts continuous strain and stress on selected muscles and bones of the tailors and the very limited break and changes from the tailoring task takes its toll in the form of musculoskeletal problems. In this study we put more emphasis on the Sartorius muscle as it is the major muscle involved in this profession. Due to its importance it is known as tailors muscle. This Sartorius muscle tend to go for repeated adaptive shorting due to continues strain put by repeated pedaling movement and prolong crossed leg sitting posture. Corrective measures are a must for this rampant problem among the tailors. Thus the study aims in finding the effectiveness of

Sartorius muscle stretching in reducing the adaptive shorting of the muscle. The study compared the results commonly used treatment strategies for the patients with the adaptive shortness of Sartorius muscle. The Numerical pain rating scale was commonly used as outcome measures in the treatment of Sartorius pain which indicates that the outcome measures able to detect the changes produced by the treatment. The findings obtained in this randomized controlled study imply that standing Sartorius stretch is effective in reducing pain caused by adaptive Sartorius muscle. Results of the present study showed that there was a significant improvement in experimental group. For the outcome measures NPRS paired t-test analysis showed significant statistical difference (p<0.05) between pre and post-test measurements.The results shows that the post intervention phase NPRS scale 95% confidential interval and t value is 20.44, standard error of difference 0.313.The two tailed p value is less than 0.0001 by conventional criteria this difference is considered to be extremely statistically significant. Sartorius pain (2001-2009) was reported, in which 75% was the success rate in 56 patients who underwent physiotherapy. This study concludes to prove the effectiveness of sartorius stretch for the female tailors for reducing the pain

Suggestions and limitations:

1. Small sample size
2. EMG biofeedback may be of great means of research in future.
3. This study concentrates only the pain outcome aspect.
4. Lesser intervention duration
5. Both gender can be included in future studies

CONCLUSION:

The Sartorius muscle can move the hip joint and the knee joint, but all of its actions are weak, making it a synergist muscle. At the hip, it can flex, weakly abduct, and laterally rotate the thigh. At the knee, it can flex the leg; when the knee is flexed, Sartorius medially rotates the leg. Turning the foot to look at the sole or sitting cross-legged demonstrates all four actions of the Sartorius. So, it is also called as Tailors muscle. Due to repeated pedaling it may lead to adaptive shortness. Many of the common physical therapy treatments are less effective in this region. This study was concluded that to prove the effectiveness of Sartorius stretch for female couturier.

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