



EFFECTS OF PNF STRETCHING ON QUADRICEPS MUSCLE FLEXIBILITY AMONG YOUNG FEMALES

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ABSTRACT

Background: Various lines of treatment regimes were discussed earlier to deal with the quadriceps flexibility. One among that is PNF stretching, which is effective in flexibility of quadriceps among young females. **Aim & Objective:** The aim of the study is to assess the effect of PNF stretching on quadriceps flexibility among young females. **Methodology:** This study is an experimental study consisting of 30 samples ranging between the age group of 18 to 25 years. They are divided into group A [control group] and group B [experimental group], group A consisting of 15 samples, and group B consisting of 15 samples. Group A performed stretching and Group B performed PNF stretching for 5 times a week for 6 weeks with four repetitions per session with relaxation period of 15 seconds and stretch period of 15 seconds. **Outcome Measure:** ROM. **Tool Required:** Goniometer. **Result:** The pre and post test values scores were analyzed in finding out the effectiveness of PNF stretching on quadriceps flexibility among young females. **Conclusion:** This study concluded that PNF stretching on quadriceps flexibility among young females is effective.

KEYWORDS: Flexibility, Stretching, Proprioceptive neuromuscular, Facilitation [PNF], Quadriceps, tightness, Range of motion, Goniometer.

INTRODUCTION

The terms “flexibility” and the “muscle length” are often used synonymously when referring to the ability of the muscles to be lengthened to their end range. FLEXIBILITY refers to the total range of the motion of a joint. Flexibility is an important physical quality in a number of sports such as gymnastics, ice hockey, figure skating, synchronized swimming, some marital art postures, dance and other activities. Despite an improvement in particular range of motion (ROM) induced by stretching, reduced muscle force generating capacity, and sport-related performance are common findings. Stretching exercises are commonly prescribed during warm-up and cool-down protocols and rehabilitation programs. Stretching is applied for the purposes of injury prevention, increasing joint range of motion ROM, and increasing muscle extensibility. Two common stretching in clinical practice are static stretching and proprioceptive neuromuscular facilitation PNF stretching. It is generally believed that PNF stretching will result in increased inhibition of the targeted muscle. Researchers have investigated both static and PNF stretching techniques to determine them effective way to increase joint ROM by altering the extensibility properties of the muscle.

AIM: The aim of the study is to assess the effect of PNF stretching on quadriceps flexibility among young females.

RESEARCH DESIGN AND METHODOLOGY

An experimental study design was conducted with 30 samples, who fulfilled the inclusion and exclusion criteria.

INCLUSION CRITERIA

- Young females with Quadriceps muscle tightness.
- Age 18-25 years female.
- Willing to participate in the study.

EXCLUSION CRITERIA

- Previous history of hip or knee or spinal Injuries any contracture or deformities.

OUTCOME MEASURES

ROM

MATERIAL USED

- Goniometer
- Treatment Table
- Pen
- Paper

PROCEDURE

The samples are selected according to inclusion Criteria and exclusion criteria after which an Informed consent has been obtained. This study consists of 30 samples which is divided into two groups namely **GROUP A**(control group) and **GROUP B**(Experimental group). Each group consists of 15 samples. Both the groups were initially assessed with goniometer and measurements were noted.(pre-test value).

Group A of 15 samples performed self stretching and Group B of 15 samples performed PNF stretching.Both the groups performed stretching 5 times a week for 6 weeks four repetitions per session with relaxation period of 15 second stretch period of 15 sec. After treatment period both the groups were reassessed with goniometer (post-test value). Pre and Post test values of both (Group A and Group B)was analyzed statistically.

PROTOCOL

| GROUP A (CONTROL GROUP) | GROUP B (EXPERIMENTAL GROUP) |
|---|--|
| <ul style="list-style-type: none"> ➤ Intervention period 6 weeks ➤ In a week treatment is given for 5days ➤ 15 samples were performed self stretching ➤ four repetition per session with relaxation period of 15 sec and stretch period of 15sec ➤ Each intervention took 2 min consisting of repetition of 15 sec contraction and15 sec relaxation period | <ul style="list-style-type: none"> ➤ Intervention period 6 weeks ➤ In a week treatment is given for 5 days ➤ 15 samples were performed PNF stretching ➤ four repetitions per session with relaxation period of 15 sec and stretch period of 15sec ➤ Each intervention took 2 min consisting of repetition of 15 sec contraction and15 sec relaxation period |

DATA ANALYSIS

Data analysis was done. Pre test and post test values of the control group and experimental group were statistically analyzed by means of t-test. The posttest values of experimental and control group were analysed

by chi square test.

The significance levels used for this study is $P < 0.05$.

Table:1

| SL.NO | MEAN VALUE | | SDVALUE | | T-VALUE | P-VALUE |
|-------|------------|--------|---------|------|---------|---------|
| | PRE | POST | PRE | POST | | |
| 1 | 97.06 | 105.46 | 4.55 | 4.15 | 5.288 | <0.001 |

Table:2

| SL.NO | MEAN VALUE | | SDVALUE | | T-VALUE | P-VALUE |
|-------|------------|-------|---------|------|---------|---------|
| | PRE | POST | PRE | POST | | |
| 1 | 97.8 | 110.5 | 4.95 | 4.97 | 7.003 | <0.001 |

RESULT

A total of 30 subjects between the age group of 18–25year were included in this study. This study consists of two groups A and B.Group A consists of 15subjects (N=15) to perform self stretch. Group B consists of 15subjects (N =15) who were given PNF stretch.There is statistically greater improvement in experimental group B of Mean value(110.5) is more effective than the mean of control group A(105.46).

experienced reduced sensitivity for only half our movement trials. By applying PNF stretching, it is assumed that improvements in joint range of motion occur as a consequence of altered proprioceptive feedback of either the targeted muscle or its antagonist.

DISCUSSION

This study is an attempt to find out any significant difference between self stretch and PNF stretch groups. The results in this study suggest that there is significant difference in the pretest and post test scores of PNF stretch than self stretch groups. The PNF stretching protocol was designed to reduce knee joint sensitivity to movement in both the flexion and extension in directions. Inadequate or improper technique for stretching either the quadriceps or hamstrings could have caused an imbalance where the perception of movement would have been diminished in one direction and not the other. As a consequence, our subjects would have

CONCLUSION

This study concluded that PNF stretching is more effective on quadriceps muscle flexibility among young females.

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