



“TO FIND OUT PREVALENCE OF HAMSTRING TIGHTNESS ON YOUNG ADULT POPULATION”

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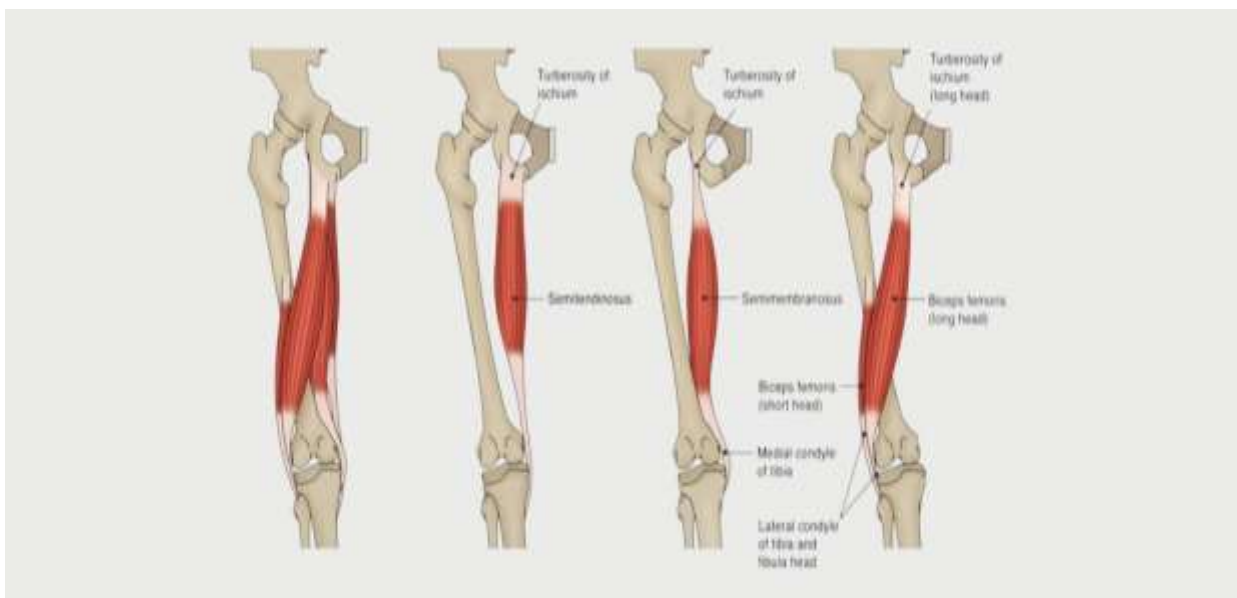
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INTRODUCTION

ANATOMY OF HAMSTRING MUSCLE :

Hamstring muscles are situated at the back of thigh. These muscle arise in the gluteal region and course through. The back of the thigh to be interested into the region of the popliteal fossa/ they are the semitendinosus. The semimembranosus, the long head of biceps femoris. And the ischial head of adductor magnus. (1)

They are weak extensors of the hip particularly in walking. When the knee is semiflexed and hip is extended the biceps femoris is a lateral rotator of the leg , while semitendinosus and semimembranosus are medial rotator of the leg (1). Hamstring contribute to posture stabilization and the control of the pelvic region. (2)



Hamstring muscle is a two joint muscle. Hamstrings are the major knee flexors and also aid in hip extension. Physiologically full stretch occurs in this muscle only if the knee is fully extended and hip fully flexed.⁽³⁾

Hamstrings muscle tightness is a common condition even among young healthy individuals and recreational athletes. Hamstrings strain remains a primary concern for rehabilitation professionals as they result in a debilitating injury characterized by acute loss of functional performance, prolonged periods of recovery, and resultant increased incidence of recurrence ⁽⁴⁾. Flexibility has been defined as the ability of a muscle to lengthen and allows one joint (or more than one joint in a series) to move through a ROM.^(5,6)

Flexibility is considered the basic component of human fitness and decreased flexibility of soft tissues lead to severe musculoskeletal injuries. In lower extremity one of the most common musculotendinous injuries are hamstrings injury ^(7,8).

Causes of hamstring TIGHTNESS

Many people suffer with hamstring tightness. Therefore it is very important that an understanding is established regarding hamstring tightness and the treatment used to increase hamstring flexibility. ⁽⁹⁾

The hamstring is a major dynamic muscle in the pelvic area, tightness of this muscle reduces pelvic anterior tilting, limits hip joint movements, and causes pain. Ultimately, structural and functional changes in the hamstring affect activities of daily living, ⁽¹⁰⁾ Hamstring muscles lying at the back of the knee can be accidentally or deliberately slashed or cut. If cut the person cannot run, as these muscles are required for extension of the hip and flexion of the knee, movements essential in walking/running.⁽¹¹⁾

Hamstrings have variable length some persons cannot touch their toes with fingers while standing straight as their hamstring muscles are rather short. ⁽¹¹⁾

Reasons for hamstring tightness are:

Repetitive movement,

Poor posture

Constantly sitting in a sedentary lifestyle force hip flexors into a constantly-shortened position

Genetic – You can be born with naturally short hamstrings when some people are naturally supple.

NEED OF STUDY :

- Work related hamstring tightness are the major complaints among adults as the profession demands long time standing , walking . So it become necessary to find out hamstring tightness in young adult population Hence the need of study to asses hamstring tightness

RESEARCH HYPOTHESIS :

NULL HYPOTHESIS (H_0) : There is no significant prevalence for hamstring tightness in young adult population

ALTERNATIVE HYPOTHESIS (H_1): There is significant prevalence for hamstring tightness in young adult population.

AIM AND OBJECTIVE:

AIM: to evaluate the prevalence of hamstring tight in young adult population

Objective: to determine the prevalence of hamstring tight in young adult population

METHODOLOGY

A) SOURCE OF DATA :- PARUL UNIVERSITY

B) STUDY POPULATION :-

In young adult population with hamstring tightness

C) STUDY DESIGN : A Survey study

D) SAMPLE METHOD:-

SAMPLE SIZE : Total Number of Population = 100

SELECTION OF SAMPLE: Random sampling (chit method).

CRITERIA

INCLUSION CRITERIA:-

- AGE :- 18 to 25
- GENDER :- both male and female
- Tight Hamstring (in ability to achieve greater than 160 degree of knee extension with Hip 90 degree of flexion).

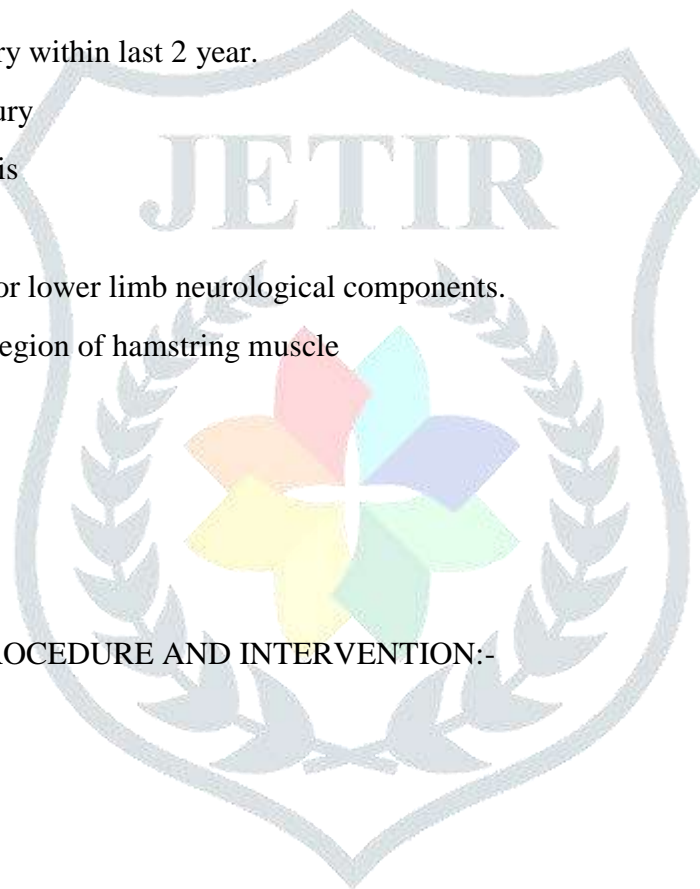
EXCLISION CRITERIA:-

- History of Hamstring Injury within last 2 year.
- Posterior thigh muscle injury
- Uncertain clinical diagnosis
- Low back pain.
- Any indication of lumbar or lower limb neurological components.
- Visible acute swelling of region of hamstring muscle

DATA COLLECTIONT PROCEDURE AND INTERVENTION:-

❖ MATERIAL USED :-

Consent form
Paper
Pen/pencil
Box
Tape
Calculator



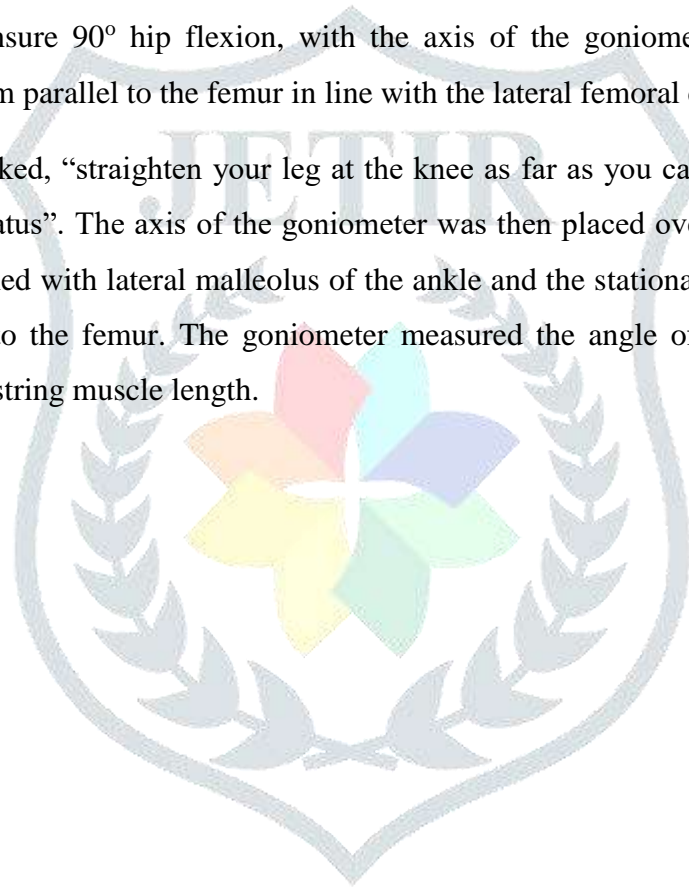
PREDICTOR AND OUTCOME MEASURES:

ACTIVE KNEE EXTENSION:-

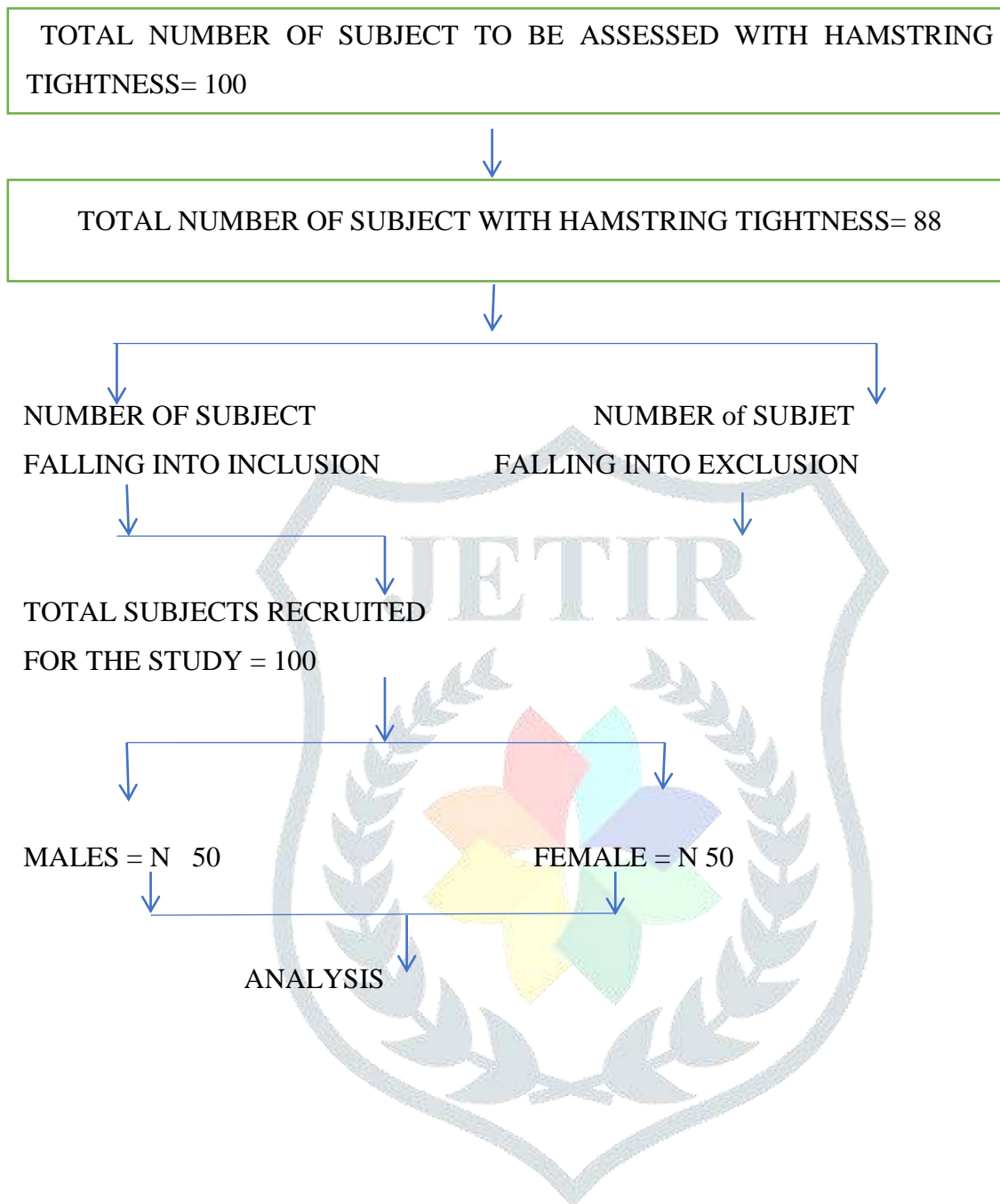
The subject was placed in supine position and hip joint was fixed at 90 degrees of flexion by sling. Next, the subject extended her knee actively and her popliteal angle was measured by goniometer.

For the Active Knee Extension Test participants were positioned supine on a plinth so that the leg not being tested was flat on the plinth with the knee extended. A strap was placed over the mid-thigh of this leg to eliminate any elevation of the limb. An additional strap was positioned over the front of the participant's pelvis and around plinth to maintain the pelvis in a neutral position during hamstring measurements. The participant was asked to flex the hip of the test leg so that their thigh was touching the wooden apparatus. The goniometer was used to ensure 90° hip flexion, with the axis of the goniometer placed over the greater trochanter, the stationary arm parallel to the femur in line with the lateral femoral condyle.

The participant was then asked, "straighten your leg at the knee as far as you can while maintain your thigh touching the wooden apparatus". The axis of the goniometer was then placed over the lateral knee joint line, the moveable arm was aligned with lateral malleolus of the ankle and the stationary arm was aligned with the greater trochanter parallel to the femur. The goniometer measured the angle of knee extension in degrees giving an indication of hamstring muscle length.



PROCEDURE



- PROCEDURE:**

Subjects will be taken from Parul University. The age of the subjects will be ranged between years 18-25 year.

Subjects fulfilling the inclusion and exclusion criteria will be selected and assessed before starting the intervention.

A written and informed consent about enrolment in the study and maintaining adequate privacy and confidentiality will be taken from all subjects included in the study.

All participants will be subjected to a standardized interview including details regarding the event.

A clinical history and a complete physical and functional physiotherapy examination will be taken in each subject.

- INFORMED CONSENT PROCESS:**

A written and informed consent about enrolment in the study and maintaining adequate privacy and confidentiality will be taken from all subjects included in the study.

RESULTS :

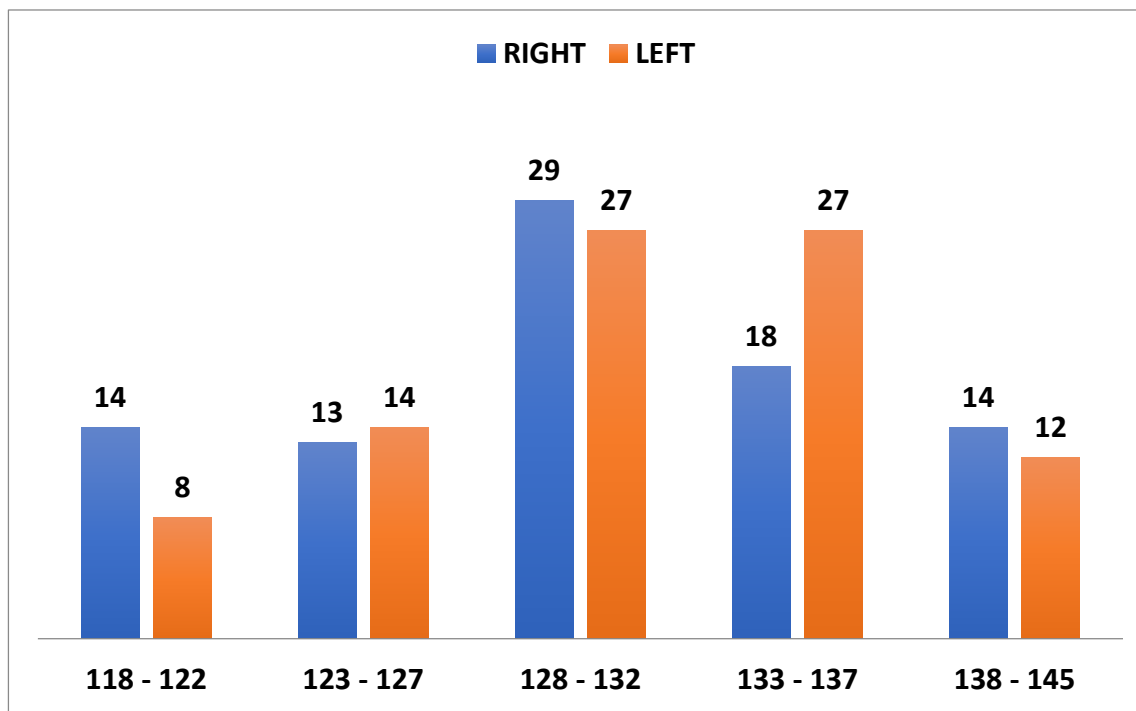
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|-----------------------------|-----|
| TOTAL NUMBER OF PARTICIPANT | 100 |
| HAMSTRING TIGHTNESS FOUND | 88 |

TABLE 1

Total 100 number of participants were selected on basis of inclusion criteria out of which 88 participants were observed to have hamstring tightness. Using active knee extension (ake)

TABLE 2

| AKE TEST RANGE | RIGHT | LEFT |
|----------------|-------|------|
| 118 – 122 | 14 | 8 |
| 123 – 127 | 13 | 14 |
| 128 – 132 | 29 | 27 |
| 133 – 137 | 18 | 27 |
| 138 – 145 | 14 | 12 |



GRAPH 1

DISCUSSION:

Dipesh Thakur et al conducted a study to find out the correlation between the right and left hamstring length in both gender to determine the prevalence of hamstring tightness among college students ⁽¹²⁾

Sheetal Mahadik conducted a study prevalence of hamstring tightness in youngster 18-25 years age– a cross sectional study. In this study they conclude that prevalence of hamstring tightness in youngsters is 82% when assessed by using active knee extension test & prevalence of hamstring tightness is more in female than male ⁽¹³⁾

Table no 2 and graph no 1 shows that maximum number of affection is seen between 128 to 132 range with right side 29 and left side 27 respectively.

Result analysis shows that severity of tightness in active knee extension test between 118⁰ - 142⁰ 88% of peoples are affected. Hence majority of participants were affected with sever tightness of hamstring.

Most of the literature supported the fact that females have greater hamstring muscle flexibility than men (14,15,16). Furthermore another study reported that females were found to have significantly greter range of motion than males(17). Literature state that female tends to be more flexible than the male of same age throught life. This is because of anatomical varience in joint structure and also performance of more regarous physical work by men, resulting in greater microtrauma (18)

CONCLUSION

From this study is concluded that 88% of the population participated in this study are found to have hamstring tightness. This was assess using Active Knee Extension.

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