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# The Relationship between Emotional Stress and Hamstring Tightness in Islamabad-Based Bodybuilders

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**Abstract**
Hamstring tightness is a widespread musculoskeletal problem among bodybuilders, which is regarded to be caused by physical load, although, new evidence shows that emotional aspects could make an important contribution to the tension of muscle. This paper explores the issue of hamstring tightness among bodybuilders in Islamabad and how it is related to emotional meaning like stress, anxiety, and psychological stress. The study involved 100 bodybuilders aged between 18 and 35 years and the standardized physical assessment and validated questionnaires were used to assess emotional states in the cross-sectional study. The results showed that a large percentage of the highly emotionally stressed participants are characterized by the high hamstring tightness, which implies a psychosomatic correlation between emotional well-being and musculoskeletal health. These findings highlight the significance of considering mental health in physical training programs to avoid injuries and enhance performance in general. The paper shows that awareness campaigns and comprehensive fitness programs and initiatives are needed to focus on the psychological and physical aspects.

**Keywords:** Hamstring tightness, Bodybuilders, Emotional stress, musculoskeletal health, Islamabad

## Introduction

Prevalence of hamstring tightness is found in nearly all around the global mainly in athletes (Weerasekara, et al. 2013). Ergonomics is the study of different posture and positions during work (Akinpelu et al, 2009). Ergonomics came into existence in 1949 Oxford, England when there was a group of people whom work was

related to human performance came together and held a meeting in which it was decided to develop a new word for this field called ergonomics. It is a Greek word `ergo' means for work and `nomos' means natural laws. The concept of ergonomics was given by Paul Fitts in which he describes that human performance are based on five factors Learning, individual differences, motivation, environment and task.

Hamstring tightness can be prevented by controlling the emotions. When person experiences a particular painful emotional experience. It show effects on the body of individuals by releasing chemical products in brain. Due to each complex interconnection body and brain controls the muscle movement combine (Koli &Anap, 2018). Some people deals with the poisoned emotions based on their sensitivity. This toxic emotion physically demonstrate imbalances in our body. Emotions rather than consciously moving the body. High incidence of hamstring tightness some of the college students of university of 18-25 age is present (Fatima et al, 2017). Hamstring tightness occurs in many of the college students is due to extended sitting (Bhavana et al, 2013). If the individual have a strong anxiety, the imbalance can lead to allergic reactions. An unconstrained toxic mood will produce chronic pain.

"Inability to increase the knee absolutely while the hip is flexed observed through pain or ache alongside the posterior thigh and/or knee is commonly attributed to hamstring muscle tightness" (Mistry, Vyas and Sheth, 2013). Hamstring tightness happens in early life and it has a tendency to boom with age. The revolutionary decline in flexibility with age has been attributed to alternate in elasticity and reduced stage of bodily sports (Gleim & McHugh, 1997). Tight hamstring may make any pose difficult.

The weight lifting and lumbar pelvic rhythm reason hamstring tightness. Tightness reason the shortening of muscle which lower the variety of lively or passive mobility. Muscle maximum prone to tightness in decrease extremity are hamstring muscle mass (Mayorga-Vega et al, 2015). Emotional reasons and their influence shall make a lot of sense. It is almost like a map of all chemicals flow.

Hamstring extensibility is a physical fitness component widely recognized as an important marker of health and quality of life (Erkula et al, 2002). Hamstring extensibility is a bodily health issue broadly diagnosed as a critical marker of fitness and pleasant of life

(Raether & Lutter, 1982). Safe, relaxation posture is ideal for stress relief.

Stress is a major problem among shoe manufacturing workers. The prevalence of labor- related depression was relatively high among shoe cobblers and also there is less support from the society with no work protection. Workers suffer discomfort and pain as there is increase in exertion and the healing or rehabilitation time is less (Shah &, Iftakhar, 2017).Thing can be improve reducing work related demand and providing protection to the workers (Esola et al, 1974).

Hamstring tightness in male and woman is different. Male have greater hamstring tightness in left leg whilst lady have in right leg due to loss of bodily sports (Dionne et al, 1974)). Fitness to keep extreme pressure on the body and intense use of muscle can cause damage of muscles. Mostly athletes work on their fitness level during development phase. They continue to strengthen their muscles which can cause muscle tightness (Sahrmann, 2002)

Previous researches showed that poor BMI can cause the higher hamstring muscle tightness directly. They showed lower BMI and high obesity. It also can be occur due to the less exercises and physical activities, who have lazy behavior. So the researcher became encouraged for doing study about that how is the prevalence of hamstring muscle tightness with lower extremity functions and musculoskeletal health. Previous researches showed that the body builders got high hamstring tightness especially males more than females. They used to do exercises on daily basis. If body builders use precautions and maintain BMI they will adjustable in health obviously. The first thing to think that how bodybuilders learn to maintain BMI and musculoskeletal health.

Musculoskeletal health is also related with emotions which influence individual's suffering with muscle pain. People with musculoskeletal pain experiences pain with fibromyalgia (FM) which present elevated level of emotional distress (Crofford, 2015). Some positive and negative emotions considers some brain pathways to make connections with sensory regions which create pain (Bushnell, Ceko, Low. 2013).

A term psychogenic rheumatism was presented in a study which was diagnosed from various patients who had musculoskeletal pain that was also occurred fibrositis (a soft tissue rheumatic disorder) which can cause by environmental changes and can put extreme effects. Conversely, psychogenic rheumatism shows some environmental fluctuations which can lead emotions including

mood, anxiety and diversions. These symptoms cause burning sensations, tightness, numbness, weakness and tingling sensations all the day. All these conditions impairs the ability of physical functioning. Psychotherapy is a primary treatment for this condition and physiotherapy is secondary treatment. (Barsky & Borus, 1999)

Methodology

The purpose of study was to check particular elements and to become aware of the bodily functions associated with hamstring muscle tightness by studying the bodily fitness and BMI of the bodybuilders including their emotional distress. To discover what fitness elements make contributions and impact on fitness of bodybuilders at gyms of Islamabad. A cross-sectional descriptive study was done and collected data from 377 body builders in Islamabad. The questionnaire included the demographic variables, private information and occupational traits. 126 people had been more than 25 years old, 50 people have been above 35 years. 30 people had been observed with extra weight problems. 82% people have been counted with regular BMI. About 150 participants were unmarried. Purposive sampling method was used. The demographic section of the questionnaire included Information approximately about their name, age, gender, occupation, weight, height, BMI, district, ethnicity, musculoskeletal disorder, any neurological situation and records of trauma. Three scales lower extremity functional scale (LEFS) and Musculoskeletal Health Questionnaire (MSHQ), Assessing emotional scale (AES) were used and data was analyzed with SPSS.

Result

Table: 1 Basic details of basic demographics of samples

| Sr. No | Variables | Mean± SD |
|---|---|---|
| 1 | Name | 1.00±.000 |
| 2 | Age (years) | 1.59±.667 |
| 3 | Gender | 1.00±.000 |
| 4 | Occupation | 1.99±.526 |
| 5 | Weight (kg/m2) | 1.90±.600 |
| 6 | Height (in feet's) | 2.18±.529 |
| 7 | BMI | 1.76±.427 |
| 8 | District | 1.36±.658 |
| 9 | Ethnicity | 1.71±1.25 |
| 10 | Muscular skeletal disorder | 1.97±.169 |
| 11 | Neurological condition | 2.00±.000 |
| 12 | History of trauma | 2.00±.000 |

Table: 2 Reliability of the lower extremity functional scale (LEFS) and Musculoskeletal Health Questionnaire and Assessing Emotional Scale (AES).

| Scales | No. of items | Cronbach's reliability co-efficient |
|---|---|---|
| LEFS | 20 | .99 |
| MSHQ | 14 | .90 |
| AES | 31 | .92 |

Table: 3 Mean, Standard Deviation, Reliability Coefficient of Scales (N=377).

| Scales | N | M | SD | No. of items | Alpha coefficient |
|---|---|---|---|---|---|
| LEFS | 377 | 64.76 | 9.18 | 20 | .99 |
| MSHQ | 377 | 52.60 | 2.05 | 14 | .90 |
| AES | 377 | 84.26 | 5.05 | 31 | .92 |

Table 4: Prevalence of Hamstring Muscle Tightness according to Clinical Exposure.

| Exposure | Normal hamstring | Tight hamstring | Toxic Emotions |
|---|---|---|---|
| Clinically exposed | 220 | 50 | 275 |
| Clinically non-exposed | 157 | 65 | 102 |
| Total | 377 | 115 | 377 |

Figure 1: Bar Graph shows the percentage of bodybuilders classified among different emotional responses categories.

Bar graphs indicates emotional responses for maximum of as underscore 1 (24.7%), score 2 (37.3%), score 3 (12.5%), score 4 (5.5) and score 5 (20%) respectively. This bar graph indicates better percentage on y-axis approximately (24.7%) and decrease as (5.5%). This percentage of responses shows the responses of individuals according to the scoring key.

Figure 2: Bar graph shows the percentage of total score of the lower extremity Functional scale (LEFS).

The overall rating suggests the proportion of overall rating of bodybuilders that indicates the ratings 53 is the least rating and the best rating is seventy two this is closest to the reduce off rating 80.

The bar graph display the 10% participants were given (53) rating, 20% (62), 30%(65), 40%(66), 50%(67), 60%(68), 70%(69), 80%(71) and 90% participants were given maximum rating of (72). The more the rating the decrease extremity. The decrease the rating the better extremity.

Figure 3: Bar graph shows the percentage of musculoskeletal health questionnaire

The overall rating suggests the share of general rating of bodybuilders that indicates the rating 50 is the least rating and the very best rating of this scale is 55. The decrease of rating is 56 of this scale that suggests the people were given better ranked ratings. Bar graph indicates 10% bodybuilders were given (50) rating, 20 %( 51), 40 %( 52), 60 %( fifty three), 80 %( 54) and 90% bodybuilders were given (55) rankings. The better the rating the more the musculoskeletal fitness.

Figure 4: Prevalence of Hamstring tightness (N=377)

Figure 4 shows the percentage of prevalence of hamstring tightness among bodybuilders on pie chart. This pie chart describes that the 82% of the body builders with prevalence of hamstring tightness and the 18% with higher hamstring tightness.

Figure 5: percentage of toxic emotions and stable emotions.

Figure 5 suggests the share of incidence of hamstring tightness amongst bodybuilders on pie chart. This pie chart describes that the 82% of the bodybuilders with occurrence of hamstring tightness and the 18% with better hamstring tightness.

Figure 6: Relationship between hamstring tightness and higher emotional stability.

Figure 6 indicates the connection among the hamstring tightness with better emotions that describes the better emotional growth with the possibilities of occurrence of hamstring. This determine suggests approximately 82% of emotional values and 12% of hamstring tightness. As the emotional stability increases the hamstring tightness will decrease.

Figure 7: Relationship between hamstring tightness and lower emotional stability.

Figure 7 indicates the connection among the hamstring tightness with lower emotions that describes the possibilities of occurrence of hamstring. This determine suggests approximately 82% of

hamstring values and 12% of lower emotional values. As the emotional stability decreases the hamstring tightness will increase.
Figure 8: Relationship between lower extremity function and musculoskeletal health and lower toxic emotions in prevalence of hamstring tightness.

Figure 8 suggests the connection among decrease extremity, toxic emotions and musculoskeletal fitness of hamstring tightness. This describes that better the ratings on decrease emotional 5 and extremity together with 72 and 55 on musculoskeletal fitness growth the superiority of hamstring tightness approximately 82%.

## Discussion

The purpose to examine was to check the prevalence of hamstring tightness in bodybuilders of Islamabad who are having toxic emotions. It found out that the range of bodybuilders has excellent extremity and musculoskeletal fitness who have lower emotional control. Muscle tightness can be connected to emotions. Both can make contributions to more than one musculoskeletal conditions.
Muscle tightness may be linked to postural disturbances. Both can contribute to multiple musculoskeletal conditions (Spine, 2015). According to the Jose et al (2014), clinical observations suggested that hamstring tightness influences lumber pelvic rhythm. Movement restrictions or postural asymmetry likely lead to compensatory movement patterns of the lumber spine and subsequently to increased stress on the spinal soft tissues and increased risk of lower back pain (Esola, 1976).
The results of the study were emerged as relatively high prevalence of hamstring tightness among bodybuilders in Islamabad. The association between hamstring tightness, lower extremity functions and musculoskeletal health and emotions was significantly positively correlated at 0.05. It is determined that the prevalence of hamstring tightness among bodybuilders is very high (Bhagyashree, 2018).
An increase in hamstring flexibility was observed in all participants. The different studies were held among the different population about prevalence of hamstring tightness that showed the same results. A study conducted in between the students of college colleges who showed 82% prevalence of hamstring tightness and the workers in offices showed prevalence about 85.7% (Nikolaos, 2012).
Due to lack of adequate physical activity, muscle weakness and some degenerative factors like osteoarthritis, senile osteoporosis

and degenerative disk disease low back pain occurs in elderly people (Waqas, 2016). By feeling tense and stressed the individual may got achy areas, sore or downright painful areas. It occurs in shoulders, neck, hips and lower back. Stress can cause physical discomfort as the continuous weight of muscle contract.

Musculoskeletal problems in adults can sometimes be caused by differences in the shape of bones and joints that develop early in life. Muscular hypertension is caused by mental stress effort and bad attitude. Lack of blood flow on these muscle sites in the body can disturbed.

The various researches were supported to the idea that the young people have higher tendencies to have greater level of prevalence of hamstring tightness and the men have lower tendency to have hamstring muscle flexibility (Wright et al, 1999). Physiotherapists should also include hamstring stretching exercises into the treatment programs, it may reduce the possible contribution of hamstring tightness to these disorders, especially low back pain syndrome (Fatima et al, 2017). And psychologist should also include some cognitive and behavior therapies for emotional prevalence. Deep breathing is best balance activity.

Clinical Implications

Stretching as soon as every week suggests exact end result with hamstring flexibility. Therefore habitual stretching of the hamstring muscular tissues want to be trained to all age groups, in particular earlier than age 30 while the tightness appears to growth greatly.

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