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ASSESSMENT OF UPPER LIMB TENSION TEST-1 (ULTT-1) IN PROFESSIONAL BODYBUILDERS

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ABSTRACT

To find out the false positive rate in asymptomatic professional bodybuilders, taking into consideration that the nerves were likely stretched or compressed between osteofibrous surfaces and hypertrophied muscles. To assess the median neuro-dynamic tension test in asymptomatic professional body- builders. The upper limb tension test-1 was performed on 50 asymptomatic bodybuilders in the age group of 20 to 45 years. Subject was instructed to report the first onset of pain during elbow extension and the angle of elbow extension was measured with universal Goniometer. The false positive rate was 94%, based on elbow extension where as 6% showed negative response. The mean age of subjects 27.84 5.16, the difference between dominance non dominance was 2°(p = 0.68, p > 0.05) which not significant, co-relation between weight categories & mean ROM was (r = 0.75) which is significant. The mean ROM of elbow extension was 29.21°±10.61 . The false positive rate was significantly high in bodybuilders, there was no significant difference between dominant non dominant arm, we also found in higher weight category there was more neural tissue tightness.

KEYWORDS : ULTT's, Neural Tissue Tightness, Bodybuilders

The upper limb tension test ULTTs also known as brachial plexus tension test. This test developed by Elvey in 1979 (Butler DA et al;1991).The therapist use neural tension test to identify brachial plexus and related neuromeningeal tissue involvement in patients with cervical & upper limb pain. Out of the different sources of neck and upper extremity pain, one major cause is nerve tissue compression and its abnormal dynamics. Peripheral neuropathic pain is situations where nerve roots or peripheral nerve trunks have been injured by mechanical or chemical stimuli, macroscopic or microscopic trauma, or entrapment of the nerves(Gifford L et al;1997). Nerve injury of this type is often manifested by sensory changes such as paraesthesias and neurological signs like motor weakness, however, the nerve can produce pain and abnormal sensations if there is reduced mobility or irritation to the nerve. Mononeuropathies commonly developed in bodybuilders (Mondelli M. et. al;1998)because they used anabolic steroids to get hypertrophied muscles.. The nerves were likely stretched or compressed between osteofibrous surfaces and hypertrophied muscles.

MATERIALS AND METHODS

Weight training put a lot of stress on the joints, tissues and nerves in the arms, and a possible result is a pinched nerve. Weight lifting may result in building muscle mass and can lead to nerve compression (Lubahn JD et al;1998). The compression can also be caused by inflammation from overuse. The median nerve is frequently entrapped nerve at the elbow. Throwing and other repetitive tasks involve repetitive forceful gripping, pronation, and sudden extension at the elbow can produce compression at the proximal margin of the pronator teres muscle.

The research was approved by the ethical committee of the institution. The subjects were explained about the research and informed written consent was taken. It was a Cross sectional study. 50 subjects in the age group of 20 to 45 years with the mean age of27.84 5.16 were included. The exclusion criteria consisted of history of upper extremity paraesthesia/numbness, cervical pain, previous diagnosis of spinal stenosis or disc pathology, circulatory or neurological disorder, and history of spine or extremity fracture.ULTT-1 was performed on the included subjects. The ULTT-1 involves performance of an ordered sequence involves six stages which include stabilization of the subject's shoulder girdle and abducting the shoulder to

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110 degrees then wrist finger extension and forearm supination followed by lateral rotation of the shoulder and elbow extension. Subject was instructed to report the first onset of pain during elbow extension. Angle of elbow extension at the onset of pain was measured with a universal Goniometer.

RESULTS

Data analysis was done by using Un-paired t-test & Pearson co-relation coefficient test.

Table 1-: The table shows the percentage of subjects according to their dominance in study group.

Table 2-: The table shows false positive rate wise distribution of subjects in study group. (p=0.68)

Graph 1-: The graph shows Co-relation between Weight Category & Average ROM in study group. (r=0.75)

DISCUSSION

Before, sequence of performance of ULTT-1 concept of examination of the neural structure & their connective tissue coverings is based upon the premise that symptoms arising pathology within the nervous system may be reproduced & differentiated by the application of manoeuvres that mechanically increase & decrease tension in these tissues while not influencing the non-neural structures. It's believed that an increase of tension will reproduce symptoms & decrease of tissue tension will reduce symptoms by application of sensitizing tests to confirm the diagnosis. In this study ULTT-1 was performed with elbow extension as last component of the test, that is end range of neurodynamic test.

This test was applied to the subjects who were asymptomatic & reported that the normal deficit ROM of elbow extension during the test was 12°-48°. Based upon the mean range of elbow extension of 29.21°±10.61, 94% of total bodybuilders showed false positive rate & 6% showed no response. Sterling (Sterling M et al;1985)examined 95 asymptomatic control subjects as part of a larger study of patients with whiplash-associated disorder (WAD). Using a modified ULTT, they reported a mean elbow angle of 12.9°. Pullos (Pullos J.et al;1986)examined the normal range of motion deficit with the ULTT in 100 asymptomatic individuals and found a range of 16.5° to 53.2° to elicit symptoms.

Also in this study 86% of total subjects are Right side dominant & 14% are left side dominant in nature. Comparison was done between dominant & non dominant side by using Unpaired t-test in relation to ROM in which 2° of difference was observed which was clinically as well as statically not significant.($p = 0.68$, $p > 0.05$). (Amstrong et al;1998) found that change of 7° elbow extension was not due to measurement error as it was done by same tester with the same instrument, but this change of 7° was due to different instrument that was used. Owen and Brew(TJ Owen et al; 2000) and Pullo's found a difference of 8° which claimed to be statically significant by Owen & Brew and non-significant in Pullo's study.

Table 1 : This Table Shows Dominance Wise Distribution of Subjects in Study Group

Dominance	No. of Cases	Percentage
Right	43	86
Left	7	14
Total	50	100

Table 2 : This Table Shows False Positive Rate Wise Distribution of Subjects in Study Group.

Neural Mediated Response	No. of Cases	Percentage
Positive	43	94
Negative	3	6
Total	50	100

Graph 1 : The Graph Shows Co-Relation Between Weight Category and Average Rom in Study Group.

In the present study 38% of total subjects felt tingling sensation in thumb & three fingers & 30% showed increased response with contra- lateral cervical side flexion. 12% subjects felt stretch in cubital fossa & 8% subjects felt stretch in anterior shoulder area. In this study comparison done between dominance arm and neural mediated response and it was found to be not significant. Davis (Davis et al;2008) also prove that there was no significant difference between dominance arm and neural mediated response. Alternately the primary mechanical fault may be one of reduced sliding, which is not directly a tension problem. It could also be a compression problem that relates to the tissues that form a mechanical interface to the nervous system. (Katie et al;2011) proved that in the dominant arm less sensory response was felt and in the non-dominant arm the response was more neurogenic.

This study also shows that with increase in weight category we found that there is more neural tissue tightness. That shows significant correlation between increased weight category & neural tissue tightness. The possible reason for this result could be because bodybuilding makes hypertrophied muscles either by producing more contractile proteins or by fusion of growing myoblasts, thus the nerves can also be compressed by surrounding hypertrophic muscles.

CONCLUSION

This study concludes that The Upper Limb Tension Test-1 shows false positive rate is significant among the professional bodybuilders without history of peripheral symptoms.This study also shows that with in higher weight category there is more neural tissue tightness. There was no significant difference between dominant & non dominant arm.

Clinical Implication

In sport population, along with general stretching exercises, neural biased stretching may be introduced as an attempt to increase neural tissue mobility with respect to the interfaces and also to increase the strength of the connective tissue components of the peripheral nerves.

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REFERENCES

Amstrong, 2007. Reliability of ROM measurement in elbow & forearm. Journal of shoulder & elbow surgery. Nov-dec., **7**(6) : 573-80.

Butler D. A., 1991. Mobilisation of the Nervous System. Melbourne, Australia: Churchill Livingstone.

Davis, 2008. ULTT & Seated slump test; the false positive rate among healthy young adults without cervical & lumbar symptoms.

Gifford L. and Butler D., 1997. The integration of pain sciences into clinical practice. Journal of Hand Therapy, **10** : 86-95.

Katie small, 2010. Normal response to ULTT-1 & 2A, Department of sports, health & exercise science, online published.

Lubahn J. D., Cermak M., 1998. Uncommon Nerve Compression Syndromes of the Upper Extremity. JAAOS, **6**(6).

Posner M. A., 2000. Compressive Neuropathies of the Ulnar Nerve at the Elbow and Wrist. AAOS Instructional Course lectures, 49.

Pullos J., 1985. The Upper Limb Tension Test Honours Thesis, Department of Physiotherapy, University of Queensland. Australia.

Sterling M., Treleaven J., 2002. Responses to a clinical test of mechanical provocation of nerve tissue in whiplash associated disorder. Man Ther., **7** : 89-94.

Owen T. J., 2000. Single blind investigation into the potential difference in passive ROM at the elbow, between dominant & non dominant arm, when using upper limb tension test.-Physiotherapy, **86** (1) : 40.