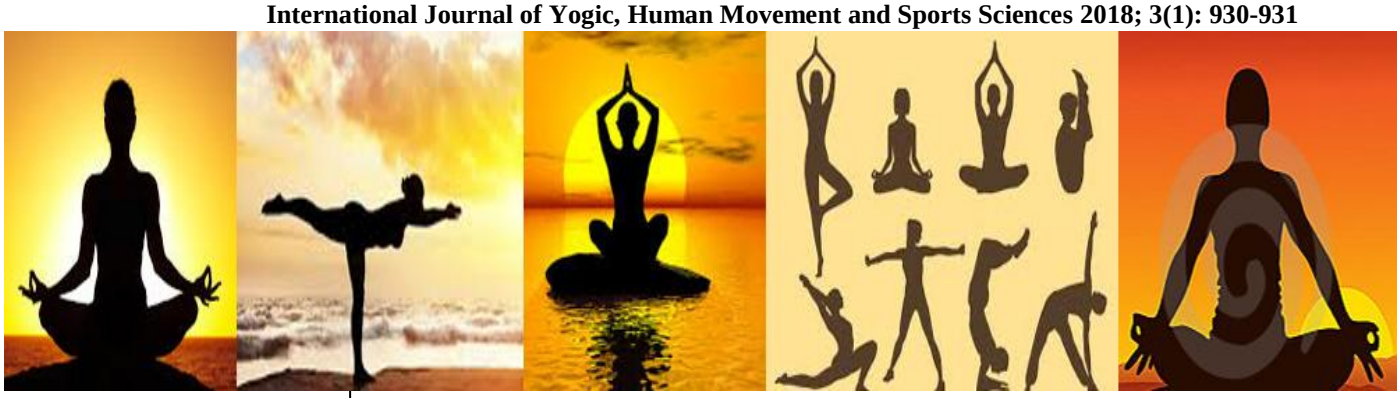
International Journal of Yogic, Human Movement and Sports Sciences 2018; 3(1): 930-931



ISSN: 2456-4419
Impact Factor: (RJIF): 5.18
Yoga 2018; 3(1): 930-931

www.theyogicjournal.com
Received: 05-11-2017
Accepted: 06-12-2017

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To study the prevalence of lumbar core strength in gymers and non gymers

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Abstract
Aim: To assess the prevalence of lumbar core strength in gymers as compared to non gymers. **Methodology:** The study design was case control study which was done on 100 subjects. The sampling method used was purposive sampling. Fifty gymers and fifty matched non gymers were assessed for lumbar core strength using biofeedback method by drawing in maneuver by sphygmomanometer.
Result: Lumbar core weakness is present in gymers as compared to the normal individuals.
Conclusion: The study has been proved significant; the gym protocols can be revised to include strengthening of the lumbar core muscles, thus preventing incidences of back pain in gymers.

Keywords: lumbar muscle; gymers; non- gymers

Introduction
Back pain is a common problems emerging in gymers. There has been a 35 percent increase in gym injuries in recent years [1].In a survey done [1], back injuries listed amongst top five most common gym injuries. The core has been defined as lumbo-pelvic hip complex which is composed of the lumbar vertebrae, pelvis, and hip joints & active, passive structures that either produce or restrict movements of these segments [2].Core stability has been defined as' 'the ability to control the position & motion of the trunk over the pelvis and leg to allow optimum production, transfer and control of force & motion to the terminal segment in integrated kinetic chain activities.
The abdominal, paraspinal and gluteal muscles are the focus of core stability training programs,which is believed to enhance performance capabilities and reduce injury risk[3].The core stabilizers the pelvis and spine, many people have weak core muscles, and thus experience back pain, dysfunctional postural patterns and altered movement in not only the spine and back, but also extremity, feet, shoulders, and entire body [4].The core muscles include transversus abdomininus and multifidus as the key muscles. Deep multidus and transverses abdominus provide intersegmental spinal stability which in turn controls intervertebral motion and spine orientation [5].In the gym scenario, the impatient gymer in order to achieve a flat belly as soon as possible moves to quickly with the exercises which predisposes the already weak core to further injury. There is a need to assess lumbar core muscle strength in gymers as compared to normal individuals. The objectives for our study are to assess lumbar core strength in gymers and normal individuals.
The specific architecture of the deep and superficial fascicles of the MF has important biomechanical implications. The superficial fibers have a more optimal lever arm to produce sufficient torque to create extension of the lumbar spine. Therefore, it is assumed that the role of the superficial MF is to extend the lumbar spine in combination with the control of spine orientation due to enhanced spinal stiffness. In contrast to the superficial fibers, the deepest fibers are near the center of rotation of the lumbar vertebras, and therefore ideally placed to control intervertebral shear and torsion via intervertebral compression, with minimal associated torque. Therefore, it is believed that the primary role of these fibers is to provide segmental stabilization of the lumbar spine [4].

Subjects and Methods
The study design was case control study which was done on 100 subjects. The samplin

method used was purposive sampling. The study was done across various gyms. Fifty gymers and fifty age, weight and height matched normal individuals were assessed for lumbar core strength was measured using biofeedback method by drawing in maneuver by sphygmomanometer

The lumbar core strength was assessed using biofeedback method by drawing in maneuver by sphygmomanometer (Diamond Deluxe B.P apparatus) [6].The subjects were asked to lie down on a plinth and were asked to bend their knees i.e. hook lying position. The subjects then assumed a neutral spine position. The cuff of the sphygmomanometer was kept at the highest point of lumbar lordosis and the pressure in the B.P machine was increased to 40 mm Hg and then the subjects were asked to draw in the stomach.

The core muscles were palpated medially and inferiorly to the anterior superior iliac spine (ASIS) and lateral to rectus abdominus, the index, the middle and ring fingers were used to sink gently but deeply into the abdominal wall [7].

After drawing in, the subjects were asked to maintain the belly in position while the evaluator palpated the activation of the core muscles and observe the rise in B.P machine.

The activation of the core was timed by counting till the muscle contraction was lost or fall in BP was observed. The rise in mmHg was noted along with the seconds of hold that the patient could maintain the lumbar contraction [8-10].The assessment of lumbar core strength in the gymers was done prior to the gyming session to maintain uniformity.

Discussion

In this study lumber core strength were assessed in gymers. The Presence of lumbar core weakness is also evident with p=0.004 in gymers. This is due to lack of strengthening of the lumbar core as compared to strengthening of the abdominals (rectus abdominus, internal and external obliques) and back externsors in gymers. Some studies suggest that when repetitive heavy lifting activities per performed, subject with inadequate lumbar core strength are probably at a higher risk of injury [11].

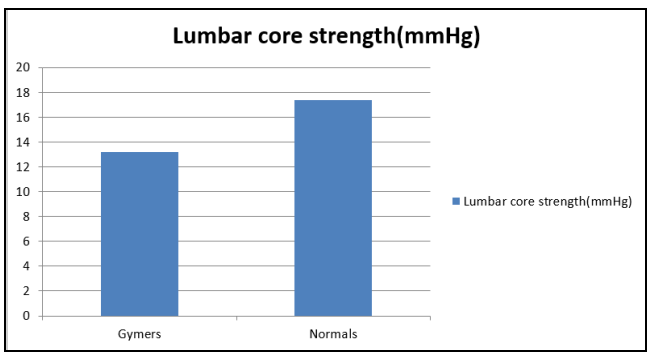
Resluts

Table 1: Demographic data table

Parameters	Normal Individuals	Gymers
Age	Mean+SD	Mean+SD
Sex	Male- 31 Female-19	Male-31 Female-19

Table 2: Lumbar core muscle strength

Angle	Mean and standard deviation		Pvalue
	Gymers	Normals	
Lumbar core strength	13.16±5.77	17.34±7.74	0.004*



Graph 1: Lumbar core muscle strength

Conclusion

It the present study it was found that lumbar core weakness is seen in gymers as compared to normal individuals. As the study has been proved significant, the gym protocols can be revised to include strengthening of the lumbar core muscles, thus preventing incidences of backache in gymers.

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