

## To Study About The Lumbopelvic Stability Level In Young Adults: A Survey

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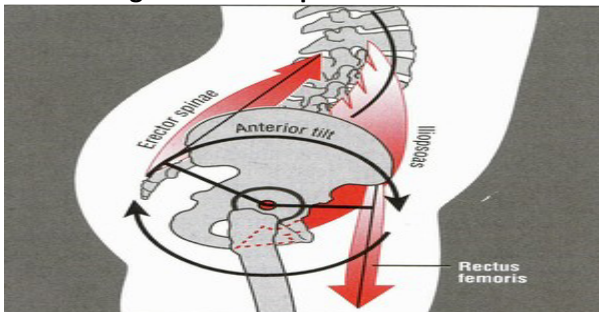
**Abstracts:** Background: Segmental stability and mobility control of the core body of the body parts accentuate peak performance and prevent musculoskeletal injury. Improper activation and poor control of deep trunk muscles (TrA, MF) exist in asymptomatic individuals showing inability to control stability, which is early detection sign for back problems. So there is a need to study the lumbopelvic stability level in young adults. Methodology: 94 healthy individuals voluntarily are selected for study based on Inclusion and exclusion criteria. Lumbopelvic stability is assessed by the method of Harrington and Davies and Jule et al, using stabilizer pressure biofeedback unit by Chattanooga, Australia. Scores were recorded as the highest level completed (0-5) with a pressure change no greater than 10 mmHg. Results: From 94 subjects only 12.76% (12.5% males, 14.29% females) has passed this test. So, 87.23% of people have less stability of lumbopelvic area. Conclusion: Lumbopelvic stability level is very less in young healthy individual population. So it is very important to make them aware about the importance of improving core stability. [Shah J NJIRM 2016; 7(3): 37 - 39]

**Key Words:** lumbar spine, lumbo-pelvic stability, back injuries.

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**Introduction:** Lumbo pelvic stability is defined as the ability to control motion of the lumbar spine and pelvis relative to an arbitrarily defined neutral position.<sup>1</sup> Without the dynamic stabilizing activity from the trunk muscles, the spine would collapse in the upright position.

Figure 1: Lumbopelvic stabilizers



Segmental stability and mobility control of the core body of the body parts accentuate peak performance and prevent musculoskeletal injury. Improper activation and poor control of deep trunk muscles (TrA, MF) exist in asymptomatic individuals showing inability to control stability, which is early detection sign for back problems. So to avoid future back pain, lumbopelvic stability is essential. So there is a need to study the lumbopelvic stability level in young adults.

### Material and Methods:

- Source of collection of data: Various colleges of Ahmedabad science colleges.

- Method of collection of data: 94 healthy individuals voluntarily are selected for study based on Inclusion and Exclusion Criteria.
- Study design: A survey
- Sample size: 94 (14 boys, 80 girls)
- Age group : 18 - 25 years
- Sampling : Simple random sampling.
- Materials used: Pen, Paper, Data collection sheet.
- Equipment and Apparatus used: Mat, pressure biofeedback unit by Chattanooga.



### Selection criteria:

#### Inclusion criteria

- Young adult having normal BMI. (According to Asian classification: 18 to 24kg/m<sup>2</sup>)
- Both male and female with the age group of 18-25 years.
- Person not engaged in sports activity more than twice in a week for 20 minutes.

**Exclusion criteria:**

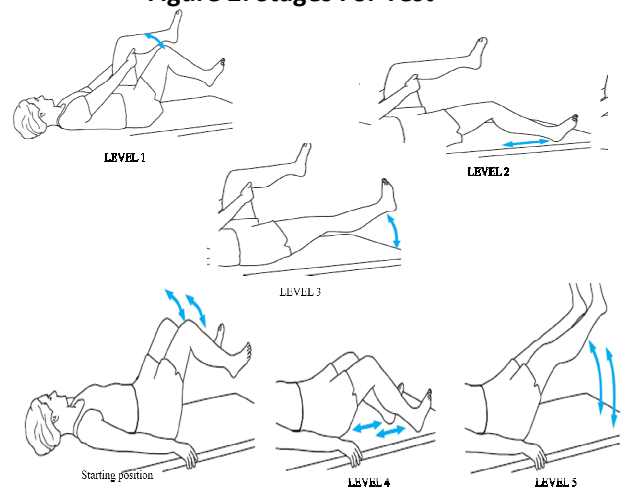
- Person who had any kind of back pain since last month.
- Engaged with regular sports activity more than twice a week and for longer duration
- Doing regular gym work
- Any associated health problem
- Pregnancy
- Any recent surgery
- Involved in high intensity exercise
- Mental disorders
- BMI less than 18 and more than 24

Subjects were taken according to inclusion and exclusion criteria after getting their informed written consent. Then lumbopelvic stability is assessed by the method of Harrington and Davies and Jule et al<sup>2</sup> using stabilizer pressure biofeedback unit by Chattanooga, Australia.

Grades were assessed based on the last successful level achieved by that individual. The PBU (Pressure biofeedback unit) as comprised of an inflatable rectangular cushion (23X14cm) connected to a pressure gauge (measuring 0-300 mmHg) and an inflation device. With the participant lying supine on a plinth, the cushion was inflated underneath the participant's lumbar spine to 40 mmHg. Changes in pressure during subsequent testing reflected uncontrolled movement of the lumbar spine. Prior to testing, all participants were instructed to do the abdominal hollowing maneuvers and told to perform this during subsequent LPS testing while attempting to minimize contraction of rectus abdominus.

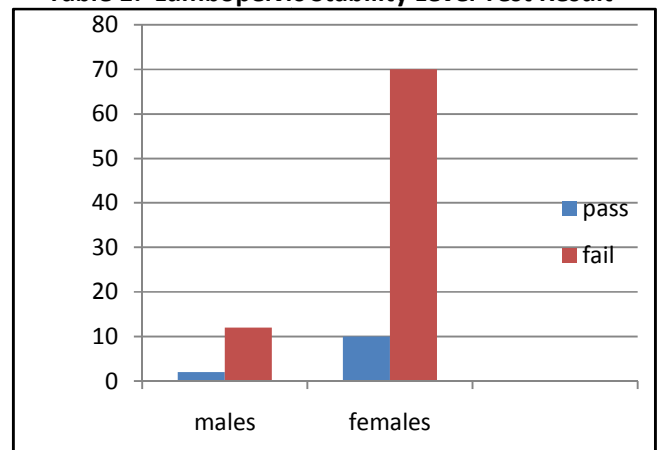
Scores were recorded as the highest level completed (0-5) with a pressure change no greater than 10 mmHg. The highest level attained in three trials was used for statistical analyses. There were five progressions of the test exercise. Progressing from level one to five, the torque produced by movement of the legs and acting on the lumbo-pelvic region, was increased. If there was a change in pressure greater than 10 mmHg during testing the trial was stopped and the participant's LPS was scored as the last level successfully completed. The degrees of difficulty of the test exercise were as follows. For complete the test successfully, participants has to complete the all 5 levels.<sup>2,6</sup>

**Figure 2: Stages For Test <sup>4</sup>**

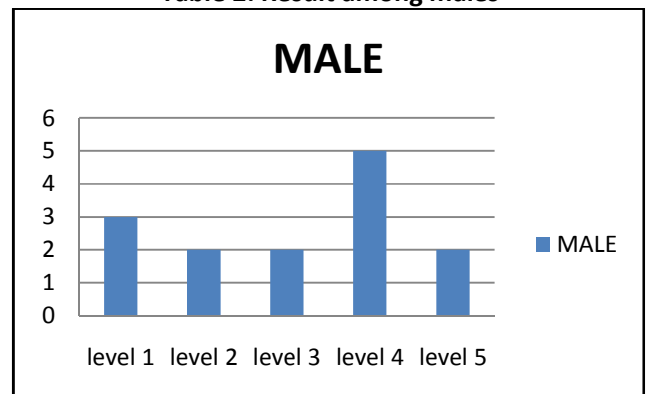


**Results:** From 94 subjects only 12.76% (12.5% males, 14.29% females) has passed this test. So, 87.23% of people have less stability of lumbopelvic area.

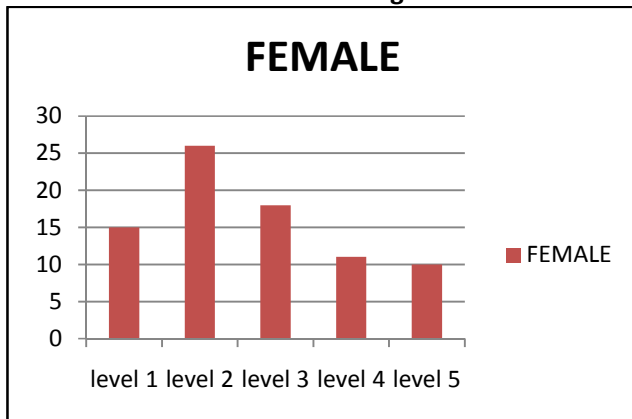
**Table 1: Lumbopelvic Stability Level Test Result**



**Table 2: Result among males**



**Table 3: Result among females**



**Discussion:** The present study shows the level of lumbopelvic stability is very less. More commonly it is level 4 in males and 2 in females. It can be due to their sedentary life style and less physical activity.

The deeper core muscles, which have segmental attachments, respond regardless of direction of motion. They provide dynamic support to individual segments in the spine and help maintain each segment in a stable position so the inert tissues are not stressed at the limits of motion.<sup>3</sup> Both the global and core musculature plays the critical roles in providing stability to the multi segmental spine. Without adequate stabilization of the spine, contraction of the limb-girdle musculature transmits forces proximally and causes motions of the spine that place excessive stresses on spinal structures and the supporting soft tissue.

Moreover, Good lumbo pelvic stability helps an individual perform better and effectively, as a good core provides a more stable base for arm and leg movements, improving the control and quality of movements. It will improve the muscular co-ordination during movement. It will provide more support for the back and may reduce the risk of back injuries.<sup>4,5</sup>

**Conclusion:** Lumbopelvic stability level is very less in young healthy individual population. So it is very important to make them aware about the importance of improving core stability. Future study can be in form of techniques which improves core stability.

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