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Effectiveness of Flutter Kicks in Patients with Low Back Pains

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Mobility of the spine;

Oswestry low back;

Low back pain;

Flutter kicks;

Physiotherapy treatment;

Abstract

Pain is a defence mechanism designed to make the subject protect an injured part from further damage. Low back pain (LBP), perhaps more accurately called as Lumbago or lumbosacral pain or lower back pain, which occurs below the 12th rib and above the gluteal folds. Low back pain is the 5th most common reason for physician visits, which affects nearly 60-80% of people throughout their lifetime. The study was experimental, with 50 samples selected conveniently. Data was collected by using Oswestry Low Back Pain Disability Questionnaire. It has been proved significant that there is Average improvement of 45.96. The result of experimenting the effectiveness of flutter kicks among 50 individuals on the lower back both in supine and prone is proved significantly effective on the patients who has undergone the treatment for five sessions of 5 days. There is a significant improvement in the pain, range of motion, mobility of the spine, activities of daily living who underwent FLUTTER KICK exercises for both Abdomen and the Lower Back. LBP has as become the highest in all the participants.

1. Introduction

Low Back Pain is a common disorder involving the muscles, nerves and bones of the back. Pain can vary from a dull constant ache to a sudden sharp feeling. According to the European Guidelines for prevention of low back pain, low back pain is defined as "pain and discomfort, localised below the costal margin and above the inferior gluteal folds, with or without leg pain" (Van Tulder M et al., 2006). Epidemiology says 60%-80% lifetime prevalence of low back pain (Jenkins H., 2002).

The spinal column is made up of vertebrae or bones, discs which are cartilage and gel-like material, nerves, ligaments and muscles (Goldschlager et al., 2013). The ligaments and muscles hold

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the vertebrae in place and allow for dynamic and stability, producing movements in the spine. These muscles include the iliopsoas muscle, erector spinae muscles, quadratus lumborum muscles, and tiny stabiliser paraspinal muscles that run up between the vertebrae.

Referred pain is another type of pain when people have a condition in their lower back that's causing pain elsewhere in the body. In the lumbar spine, the most common area to feel referred pain around the anterior or posterior thigh or hip.

Physiotherapy is one of the most widely used forms of treatment adopted for gaining relief from low back pain (Moseley et al., 2002). Moreover, it has modalities include Cryotherapy (Cold packs and ice massage) and Thermotherapy (IRR, SWD, ultrasound, hydrocollator packs). Techniques for low back pain include Mobilisation of Manipulative Physiotherapy, Stabilisation Exercises, Strengthening Exercises, Active and Passive Stretching to each muscle group.

2. Materials and Methods

This study aims to find out the "Effectiveness of flutter kicks in patients with low back pain". For this reason, the investigator chooses an experimental study because the experimental study is the best way to determine effectiveness. A sample size of 50 individuals of Male and Female were taken among the age group of 25-50 years suffering from low back pain. A population refers to the members of a clearly defined set or class of people, objectives or events that are the focus of the investigation. It is possible to study the population within the duration of the study. The investigator uses the convenience sampling technique due to the small size of the population, and it is one of the low expense and quicker method of sample selection (Alcántara et al., 2006).

Next, the researchers selected the purposive/convenience sampling method to draw out the sample from the population. The criteria of selection are (1) Age: 25-50 years, (2) Sex : Male or Female, (3) They have lower back pain, (4) Lasegue's (SLR) test, Slump test should be positive. Moreover, there are exclusions criteria, namely: Spinal surgery, Pregnancy, Scoliosis, Ankylosing Spondylitis, Fracture and dislocations of the spine, Peripheral vascular disorders, CNS disorders, Arthritis of the lower limb joints, Lumbar radiculopathy, Renal impairment, Cardiovascular disorders, Respiratory disorders are excluded, Spinal cord injury are excluded.

The Oswestry Disability Index (also know as the Oswestry Low Back Pain Disability Questionnaire) is an extremely important tool that researchers and disability evaluators use to measure a patient's permanent functional disability. The test is considered the 'gold standard' of low back pain functional outcome tools.

Standard Oswestry Low Back Pain Disability Questionnaire has been employed to assess the low back pain among the groups. Demographic data will be collected for each patient, including age, sex, occupation, history. By using Oswestry Low Back Pain Disability Questionnaire both pre and post comparison of the individual is done after the treatment taken. The procedure used here is the "Flutter Kicks in Both Supine and Prone". The patients are asked to perform the flutter kicks exercise in both supine and prone for three repetitions of 10 counts. The individual patient receives the treatment for five sessions for five days and will be asked to perform the same exercises at home three times a day.

There are mainly three types of flutter kicks. They are: Traditional flutter kicks, Crisscross flutter kicks, and Prone flutter kicks. Traditional Flutter Kicks are conducted using the technique as follow. Lie faceup on the floor and extend your legs at about a 45-degree angle to the floor. Keep arms straight by your sides, in line with the floor, with palms facing down(Alternatively, you can extend your arms and place both hands under your buttocks). Keep spine neutral, with just a slight arch in your lower back. Point your toes, keeping legs straight and almost glued together. With legs

hovering a few inches above the floor, raise one leg, then lower that leg while raising the other. That's 1repitions. Do ten reps per side. Repeat three times.

Prone Flutter Kicks are conducted by Liying facedown and extend elbows out wide, keeping hands together in front of your face. Rest chin or forehead on hands. Engaging core muscles, lift both legs off the floor to hip height or slightly past hip height- whichever feels comfortable. Lift one leg then the other in a flutter motion. Do ten reps per side. It should be repeated three times.

The collection of the data has been carried out by using the Low Back Pain Disability Questionnaire. The participants completed a questionnaire in the treatment area (Department of Physiotherapy). The questionnaire was designed to collect information on whether LBP was present during the past 12 months. Information on individual characteristics (Demographic Data), Work conditions (duration of employment in current work, average working hours per day), perceived physical exertion, and psychosocial load at work was also collected. These observations have been obtained before treatment at baseline values and after five days with the application of treatment. To compare the pre and post-treatment or evaluation values, the percentage has been calculated separately.

3. Results and Discussions

Data were numerically coded and analysed the data by using an SPSS 16.0 version Software Program and the result captured in Microsoft Excel 2007, and the data is also tabulated in Microsoft Word 2007. The investigator collected the descriptive data from the hospital and calculated as percentages and presented by using Bar graph and is tabulated in a table; for this study, 50 individuals were taken as the sample.

Age Distribution

Among the respondent participants who were suffering from LBP, the lowest age is 25 years, and the highest age is 50 years. The frequencies of LBP among the age group were: 2% of 28,29,33,41,47&48 years; 45 of 43 years; 6% of 28,32,35,37,42,49 years of age;12% of 35 years; 14% of 40 years and 22% of 5o years of age. Among the participants, the highest number of the participants was 50 years(22%) respectively, and the numbers were 14% (40 years) and 12%(38 years). The numbers of ≤40 years were 28(56%) and >40 years were 22(44%).

Table 1
Age of the participants

AGE IN YEARS		Frequency	Percent
Valid	25.00	3	6.0
	28.00	1	2.0
	29.00	1	2.0
	32.00	3	6.0
	33.00	1	2.0
	35.00	3	6.0
	37.00	3	6.0
	38.00	6	12.0
	40.00	7	14.0
	41.00	1	2.0

	42.00	3	6.0
	43.00	2	4.0
	47.00	1	2.0
	48.00	1	2.0
	49.00	3	6.0
	50.00	11	22.0
	Total	50	100.0

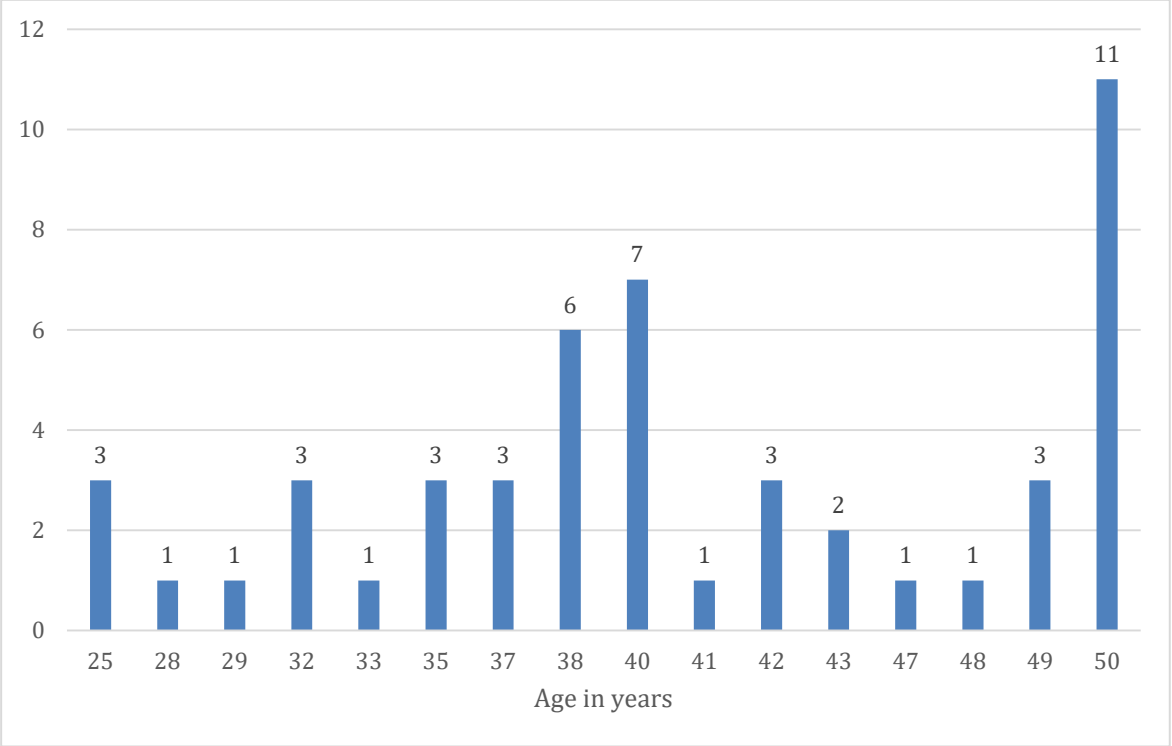


Fig 1
Affected age group

Pre-Pattern Interpretation Score

Among the respondent participants who were suffering from LBP, the researcher had been collected the information about the patients' disability of an individual by Oswestry low back pain disability Questionnaire. Based on that, the pre-pattern interpretation score has been being analysed, in that:

- 14% is crippled the patient suffering from low back pain impinges in all aspects of the patient's life i.e., it affects the activities of the daily living the patient performs.
- 8% is moderate disability were the patient experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are difficult, and they may be disabled from work. Personal care, sexual activity and sleeping are not grossly affected, and the patient can usually be managed by conservative means.

- 78% is severely disabled were pain remains the main problem in this group but activities of daily living are affected. These patients require a detailed investigation.

Table 2
Pre- interpretation score

PRE PATTERN		Frequency	Percent
Valid	CRIPPLED	7	14.0
	MODERATE DISABILITY	4	8.0
	SEVERE DISABILITY	39	78.0
	Total	50	100.0

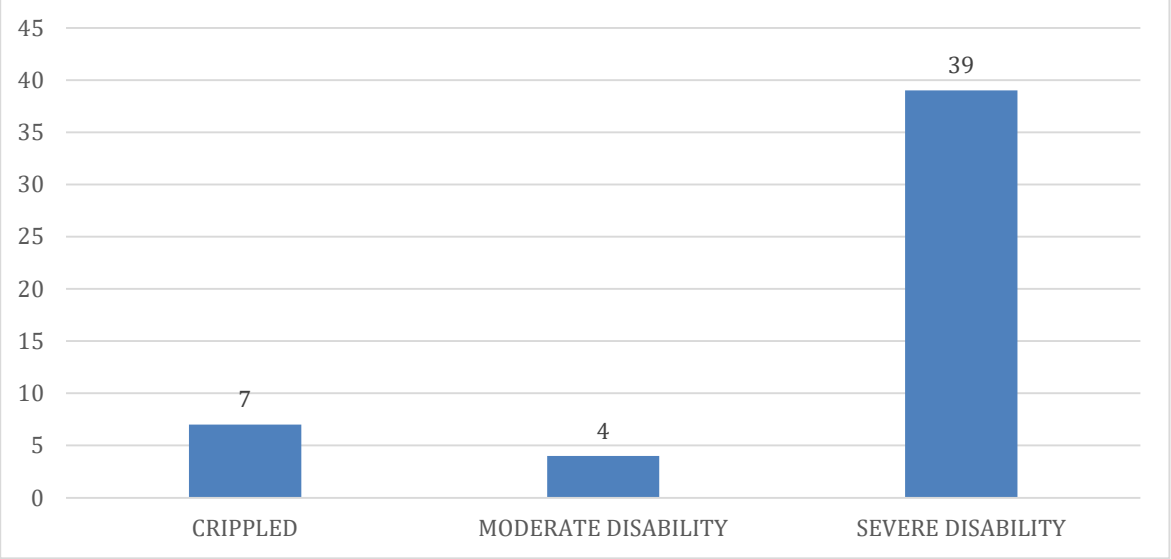


Figure 2
Ratio of Pre-interpretation score

Post-interpretation score:

Among the respondent participants who were suffering from LBP, the researcher had been collected the information about the patients' disability of an individual by Oswestry low back pain disability Questionnaire. Based on that, the post-interpretation has been analysed that :

- 94%is minimal disability were the patient can cope with most living activities. Usually, no treatment is indicated apart from advice on lifting sitting and exercise.
- 6% is moderate disability were the patient experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are difficult, and they may be disabled from work. Personal care, sexual activity and sleeping are not grossly affected, and the patient can usually be managed by conservative means.

Table 3
Post-interpretation score

POST PATTERN		Frequency	Percent
Valid	MINIMAL DISABILITY	47	94.0
	MODERATE DISABILITY	3	6.0
	Total	50	100.0

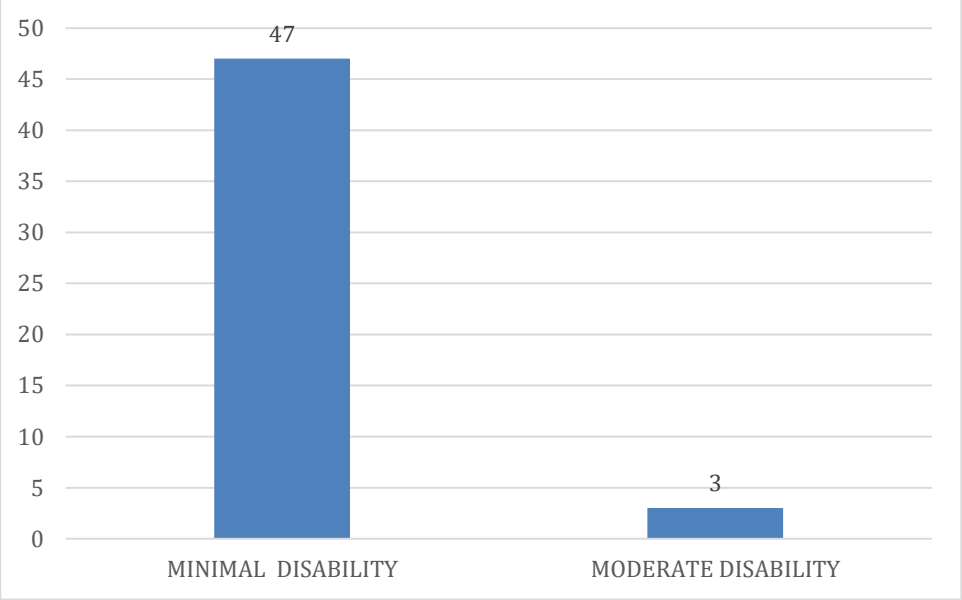


Figure 3
The ratio of post-interpretation score

Gender Distribution:

Among the 50 participants, 30 were female and 20 were Male. In percentage 60% of population were female and 40% of the population were Male.

Table 4
Gender distribution

GENDER		Frequency	Percent
Valid	FEMALE	30	60.0
	MALE	20	40.0
	Total	50	100.0

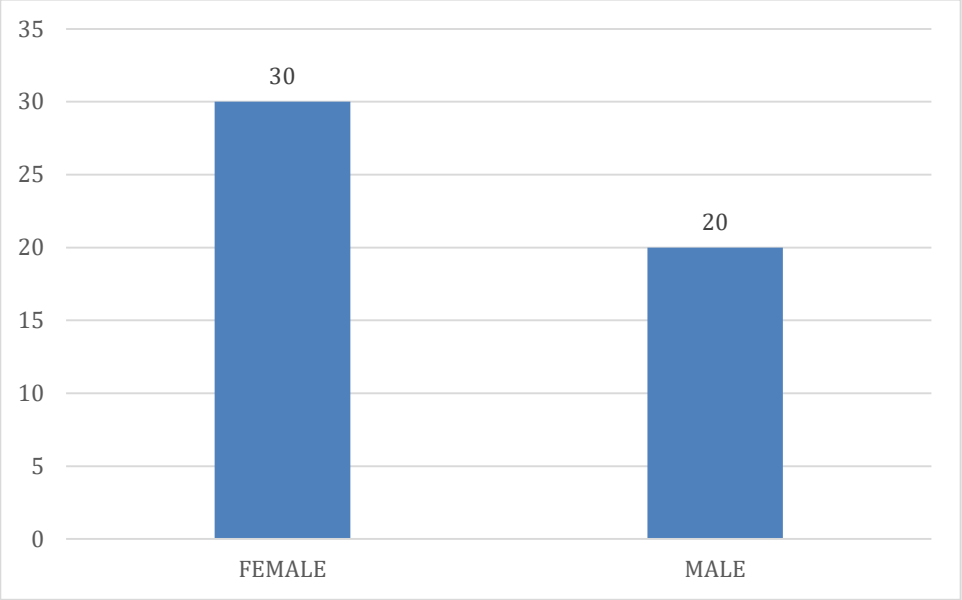


Figure 4
Ratio of Gender distribution

Pre-Post Comparison In Interpretation Score

Any statistical test is said to be statistically significant if the p-value < 0.05. If p-value > 0.05 we say that it is not statistically significant. In the pre-post comparison table, the pre-interpretation score is 59.4000 with Standard deviation 13.33554 and the post-interpretation score is 13.4400 with standard deviation 5.15934. Average improvement is 45.96 i.e. [Pre-interpretation score – Post-interpretation score]
[59.4000-13.4400 = 45.96]. T-value is 28.357. We won't draw any conclusion from t-value we conclude the p-value. So, p-value is 0.000. As already said that any statistical test is said to be significant if p-value is< 0.05. Hereby the p-value=0.000 which is statistically significant.

The final table concludes that there is significant improvement in the interpretation score after the treatment and the improvement is 45.96.

Table 5
Pre-Post comparison

Pre post comparison	Mean	Std. Deviation	Average improvement	T value	Pvalue/result
Pre interpretation	59.4000	13.33554	45.96	28.357	0.000 sig
Post interpretation	13.4400	5.15934			

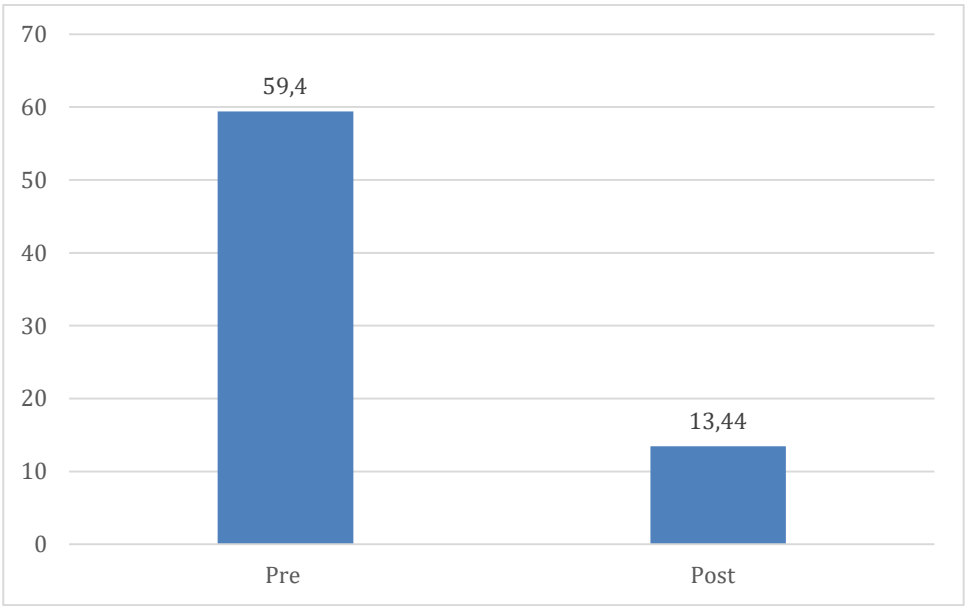


Fig 5
Ratio of Pre-Post comparison

Discussion

All the participants were evaluated with data collection and Oswestry Low Back Pain Questionnaire. The assessment is made for the pre and post interpretation score of an individual. In this questionnaire, low back pain is evaluated by a score of 0-20 per cent is a minimal disability where the patient can cope with daily living activities; 21-40 per cent is a moderate disability where the patient experiences more pain and difficulty in normal daily living activities; 41-60 per cent is severe disability where the patient is unable to perform normal activities;The age distribution of the sample show that 22% of 50 years were highest and the 2% of certain age group were lowest. In Pre-pattern interpretation 14% were crippled; 4% were moderate disability and 78% were severe disability. In Post-pattern 94% were minimal disability and 6% were moderate disability.

According Gender distribution, 60% of population were Female; and 40% of population were Male.In the pre-post comparison, the interpretation score is statistically significant (p-value < 0.05). So, there is significant increase in the improvement in the interpretation score after the treatment and the improvement is 45.96. Thus, the patients who were suffering from LBP were effectively improved their ROM, Pain, ADL's etc. by performing FLUTTER KICK on both supine and prone position. So, it can be included in the Physiotherapy treatment for LBP.

4. Conclusion

It can be concluded from the study that there is significant improvement in the pain, range of motion, mobility of spine, activities of daily living who underwent Flutter Kick exercises for both Abdomen and the Lower Back.

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