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Effect of Positional Release Technique with/Out Exercise in Treatment of Chronic Low Back Pain Patients

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Received: April 07, 2020

Published: May 19, 2020

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Abstract

Objective: To know the effect of positional release technique with/out exercise in patients with chronic low back pain.

Materials and Methods: The study was performed in the physiotherapy department at Palestine Ahliya University. Patients with chronic low back pain were randomly gathered. The sample was 16 individuals, 20 - 65 years old. They were split into two groups, Group A with 8 patients, receiving positional release technique with exercise over 2 weeks for 6 sessions. Group B with 8 patients received 6 sessions of positional release technique treatment for 2 weeks. The resulting measurements were used for pain (VAS), functional evaluation (RMQ) and endurance (curl up test).

Results: The P value in after treatment was equal to 0.798, which is greater than 0.05. Therefore, there is no significant difference between the two treatments, but effect size calculations suggest that pain in patients is reduced by position release technique with exercise more than position release technique without exercise. For (RMQ) outcomes, there was no significant difference between groups with P-value = 0.234 that is greater than 0.05 after treatment, but effect size calculations suggest that position release technique without exercise enhances more than position release technique with exercise function for chronic low back pain patients. The test for post-therapy results showed a P value of 0.234 for endurance results. This value greater than 0.05, so it deduces that after therapy there is no statistically significant distinction in outcomes of endurance test between group A and group B. but the effect size of position release technique with exercises is higher than the effect size without exercises. Therefore, it can conclude that PRT with exercises increases the abdominal strength and endurance more efficiently than the position release technique without exercises.

Conclusion: Position release technique with exercise is better than position release technique without exercise in reducing pain.

Keywords: Positional Release Therapy; Stretching Exercises; Strength Exercises; Chronic Low Back Pain

Introduction

Low back pain (LBP), one of the most common musculoskeletal disorders seen in the general population, can affect any age group. It is also the most common disability in middle-aged individuals, LBP patient usually suffer pain after the initial episode, and decreased quality of life [1].

Chronic low back pain is a major cause of illness and disability, especially in people of working age, it is a common problem which affects the majority of the population [2].

Low back dysfunction refers to a variation of many large and small muscles that have relationships with the ligaments of the small joint including the piriformis, rectus femora's, gluteus Maximus and minimums. Long-standing and severe cases of low back dysfunction can develop muscle deconditioning due to spasm and atrophy due to the limitation of activities throughout the body [3].

The loads transmitted to the spine can be influenced by posture, body mechanics, trunk strength. It is common to find stiffness and reduced lumbar range of movement (ROM) in clinical presentations of LBP with a limited ability to perform flexion of the trunk [4].

In the physiotherapy setting, various therapies, including mobilizations, manipulations, electrotherapy, and exercise among others, are currently used to manage LBP. Positional release technique (PRT) has been gaining wide application and is continuously studied by many clinicians and researchers worldwide [1].

Positional release technique (PRT) is an osteopathic treatment technique first developed by Jones in 1981. Positional release (also known as strain counter-strain) is an indirect osteopathic technique, whereby dysfunctional joints and their muscle are moved away from their restrictive barrier into position of ease in the treatment of both musculoskeletal [2].

Exercise is endorsed as an effective treatment for chronic low back pain in most clinical practice guidelines. but the exercise intervention improved activity and patient’s global impression of recovery but did not clearly reduce pain at 2 months [5].

There is no established standard care for chronic LBP (CLBP), but several conservative therapies have demonstrated benefit, including different forms of intensive supervised exercise and spinal manipulative therapy (SMT) Less costly and time-consuming self-care interventions, such as home exercise, however, the evidence to support their use for CLBP [6].

Purpose of the Study

The purpose of this project is to compare the effectiveness of positional release technique with or without exercise in patients with chronic low back pain.

Materials and Methods

This study was carried out at the Physiotherapy Center at the University of Palestine Ahliya’s Faculty of Allied Medical Sciences. An experimental study of chronic low back pain, people aged between 20 and 65 years. A total of 16 patients were split equally by easy random sampling (Group A and B) into two groups. Group A, 8 patients; Position release technique with exercise) was given. Group B, 8 patients got position release technique only.

Inclusion criteria

- 1. Age group between 20 - 65 years.
- 2. Both male and female participants.
- 3. Slump Test and Faber test positive.
- 4. Diagnosed chronic low back pain
- 5. patients with or without referred leg pain.

Exclusion criteria

- 1. Spondylolisthesis.
- 2. History of vertebral fracture.
- 3. History of spinal surgery.
- 4. Disc disease.
- 5. Osteoporosis.
- 6. Bone disease.

Instrumentations

Tests

Slump test: The Slump test is a spinal test which is aimed at determining the relationship between the patient’s symptoms and restriction of movement of the pain sensitive structures within the vertebral canal or intervertebral foramina. Patient is seated

upright with hands held together behind his/her back. The examiner instructs to the patient to flex his/her spine (slump), followed by neck flexion. The examiner then places his/her hand on top of head and has the patient perform knee extension, and dorsiflexion of foot. Finally, the patient is told to return the neck to neutral. The test is considered positive if symptoms (pain) are increased in the slumped position and decreased as the patient moves out of neck flexion [7].

Faber test: The Flexion Abduction External Rotation (FABER) test is commonly utilized as a provocation test to detect hip, lumbar spine, or sacroiliac joint pathology. The patient’s tested leg is placed in, where the knee is flexed and the ankle is placed on the opposite knee. The hip is placed in flexion, abduction, and external rotation (which is where the name FABER comes from). The examiner applies a posteriorly directed force against the medial knee of the bent leg towards the table top. A positive test occurs when groin pain or buttock pain is produced. Due to forces going through the hip joint as well, the patient may experience pain if pathology is located in the hip as well [8].

Measurements

The demographic information was evaluated for each patient, so the assessment was performed before and after therapy for each patient of the two groups. The evaluation procedure included:

- 1. **Pain assessment (Visual analogue scale):** The visual analogue scale (VAS) is considered to be one of the best methods available for the estimation of the intensity of pain. The VAS provides a continuous scale for magnitude estimation and consists of a straight line, the ends of which are defined in terms of the extreme limits of pain experience it has a length of 10 cm and is named as two ends on vertical or horizontal line (0 = no pain, 10 = the most severe pain). The patient is asked to mark a point corresponding to the pain intensity he / she feels on this line. The distance between the indicated point and the lowest end of the line (0 = no pain) is measured in centimeters and the numerical value found indicates the patient’s pain intensity [9].
- 2. **Functional assessment (Roland Morris disability questionnaire):** The RDQ is a health status measure designed to be completed by patients to assess physical disability due to low back pain, The Roland Morris Disability Questionnaire; consists of 24 statements relating to the person’s perceptions of their back pain and associated disability. This includes items on physical ability/activity (15), sleep/rest (3), psychosocial (2), household management (2), eating (1) and pain frequency (1) [10].

3. **Endurance test:** Curl up Test: The curl-up with knees flexed and feet unanchored has been selected because individually these elements have been shown to decrease movement of the fifth lumbar vertebra over the sacral vertebrae, minimize the activation of the hip flexors, increase the activation of the external and internal oblique's and transverse abdominals, and maximize abdominal muscle activation of the lower and upper rectus abdominals relative to disc compression (load) when compared with a variety of sit-ups. Equipment's and Facilities: Mat, timer and a measuring strip are needed. The strip wide should be 12 cm < 45 years and 8 cm > 45 years for measuring distance. The study was used a timer of 40 seconds. Patient lies in a supine position on the mat, knees bent at an angle of approximately 140°, feet flat on the floor, legs slightly apart, arms straight and parallel to the trunk with palms of hands resting on the mat. The fingers are stretched out and the head is in contact with the mat. Make sure patient has extended his feet as far as possible from the buttocks while still allowing feet to remain flat on floor and when test is started, Therapist counts curl-ups during 40 seconds and determine percentiles according to age group and gender for partial curl-up [11].

Instruments for treatment

The approaches to be applied are as follows:

- Group A (positional release therapy with exercise): Group (A) 8 patients were given 3 sessions per week for 2 weeks, 3 LBP exercise was applied for 10 minutes, 3 minutes for every exercise and two positional release techniques were applied for 15 minutes, the sessions duration was last for 25 minutes.
- Group B (positional release therapy): Group (B) 8 patients were given 3 sessions per week for 2 weeks, tow position of positional release techniques was applied for 14 minutes.

Exercises for low back pain

Supine bridging on physio ball: Lie facing upward on floor with knees straight, feet resting on physio ball, arms at sides; draw in abdominal muscles and maintain throughout exercise; slowly lift your butt off floor until trunk is parallel to thighs; hold for 3 - 5 seconds; slowly return to starting position. Repeat 10 - 20 time for 3 minutes (Princeton university 2018).

Prone Cobra's: Lie on your stomach on a table or mat with your arms at your side; lift your head and chest off the table/mat; hold your gluteus (buttock muscles) tight and squeeze your shoulder blades together; hold briefly and return to starting position. Repeat 10 - 20 times for 3 minutes (Princeton university 2018).

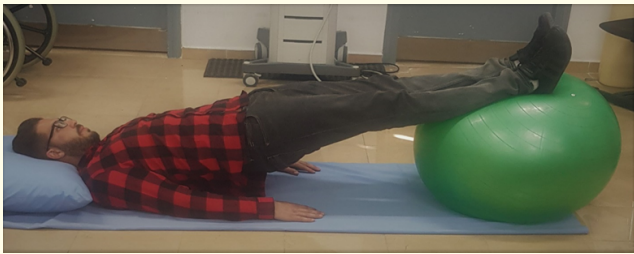


Figure 1: Supine bridging on physio ball exercise.



Figure 2: Prone Cobra's exercise.

Supine butt lift with arms across chest: Lie on your back on table or mat with hips and knees bent to 90 degrees with feet flat on floor and arms across chest; draw in abdominal muscles and maintain throughout exercise; slowly raise your butt off the table/mat by using your gluteus and hamstrings until your torso is in line with thighs; hold for 3 - 5 seconds. Repeat 10 - 20 time for 3 minutes (Princeton university 2018).

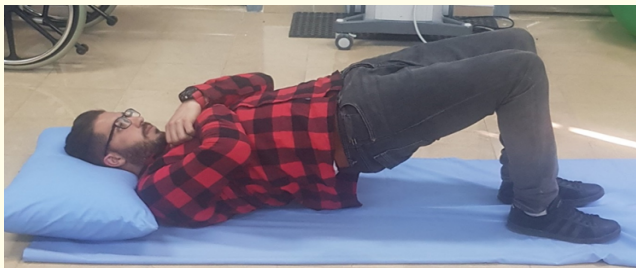


Figure 3: Supine butt lift with arms across chest.

Positional release therapy

The patient is prone, the therapist stands on the side opposite the strain, grasping the leg on the side of the dysfunction/tender point, just above the knee, bringing it into extension and adducting it towards the practitioner with Pressure on the tender point. PRT for seven minutes per session [12].

The patient is side-lying, the therapist stands in the side of strain, hip can be flexed, abduction and the knee flexed 90 degrees,



Figure 4: Supine butt lift with arms across chest.

while the fine-tuning is accomplished by slightly flexion of the leg with pressure on the tender point in the lateroposterior muscles of the back. PRT for seven minutes per session [12].



Figure 5: PRT technique.

Statistical analysis

The SPSS 24.0 software (Statistical Package for Social Sciences) was used to study the difference in groups and within groups. Descriptive and frequency statistics was used to study the main characteristic of the sample. Means, standard deviation, and percentages.

Continuous variables were given as mean ± standard deviation while categorical variables were given as number and percentage. Independent samples t-test (or independent t-test for short) was used to study the similarity of demographic data between groups.

Wilcoxon Signed Ranks Test was used to study the change between pre- and post-treatment. G*Power software version 3.1.9.4. was used to calculate the effect size of the Wilcoxon Signed Ranks Test. Power analysis for a Wilcoxon signed-rank test was conducted in G*Power to determine a sufficient sample size using an alpha

Variables	Group A LBP Exercises and PRT Mean (SD)	Group B PRT Mean (SD)	t-value	p-value
Age	36.9(9.8)	35.5 (16.0)	0.207	0.839
Weight (Kg)	75.1 (10.9)	73.0 (10.5)	-1.470	0.164
Height (Cm)	168.8 (8.5)	175.4 (9.5)	0.397	0.698
BMI	26.3 (2.6)	14.8 (10.3)	3.065	0.008
Injury onset (Months)	22.0 (23.5)	7.1 (2.5)	1.781	0.097

Table 1: Demographic data comparison between the two groups. PRT: Positional Release Technique; LBP: Low Back Pain; BMI: Body Mass Index; Data are presented as Mean (SD); significant difference = $p < 0.05$.

of 0.05, a power of 0.80, a large effect size ($dz = 0.8$). Additionally, Power analysis for a Wilcoxon signed-rank test was conducted in G*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, a medium effect size ($dz = 0.5$). Also, Power analysis for a Wilcoxon signed-rank test was conducted in G*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, a small effect size ($dz = 0.2$). The Mann-Whitney test was used to study the comparison between the 2 treatments.

Results

A total of 16 participants participated in this research. The patients were divided into 2 groups (A and B). Each group encompassed 8 participants. 44% of the total participants were males, where 56% were females. In group A, 25% of the participants were males and 75% of them were females. In group B, 63% were males and 38% were females. The chart below depicts these data.

Respecting injury onset, in group A, the average injury onset was 22 months. In group B the average was 7.1 months. Although the difference seems to be high, the t-test indicated that this difference between the 2 groups is not significant with p value 0.097.

Regarding the participants weight, the average weight for group A was 75 Kg, while the average in group B was 73 Kg. With regard to height, the data show that the average height in group A was 168.8 cm and the average height in group B was 175.4 cm. In spite of these differences between the 2 groups, the t-test indicated that these differences are not significant.

As for Age, the average age for group A was almost 37 years, and the average age for group B was about 36 years (almost equal averages). With respect to the Body Mass Index, the average BMI for group A was 26.3 while it was 14.8 in group B. The t-test indicated that this difference in the body mass index between the 2 groups is

significant with p value 0.008. The table below summarizes all the above-mentioned data including the standard deviations for each variable, and the values of the t-test between the groups.

Effect size calculations and Wilcoxon Signed Ranks Test. The effect size found to be $d = 5.3$ which is extremely high effect size. Therefore, it concludes that the power of the test is way higher than 80%. This means, a sample of 8 is enough to detect the effect of the treatment.

Additionally, the result of the Wilcoxon Signed Ranks Test in group “A” (Positional Release Technique with exercises) shows that the P value is 0.011 which is less than $\alpha = 0.05$. Therefore, it concludes that there is statistically significant deference between the pain before the treatment and the pain after the treatment by Positional Release Technique with exercises. When studying the means (averages) of pain, the results revealed that the average pain before the treatment was 5.37 (0.51), while after the treatment the pain decreased to 1.63 (0.74). Thus, it infers that Positional Release Technique with exercises treatment reduces chronic low back pain significantly.

In group B, it used the same approach as above to assess the effect of Positional Release Technique without exercises on chronic low back pain patient. The effect size found to be $d = 4.31$ which is high effect size. Therefore, it concludes that the power of the test is way higher than 80%. This means, a sample of 8 is enough to detect the effect of the Positional Release Technique without exercises on chronic low back pain.

Furthermore, the result of the Wilcoxon Signed Ranks Test in group (B) reveals that the P value is 0.011 which is less than $\alpha = 0.05$. Therefore, it concludes that there is statistically significant deference between the pain before the treatment and the pain after the treatment with Positional Release Technique. After studying the means (averages) of pain, it discovered that the average pain before the treatment was 5.88 (0.64), while after the treatment the pain decreased to 1.88 (1.12). As a result, it concludes that Positional Release Technique without exercises reduces chronic low back pain significantly. Table 2 and chart 1 below present these findings.

To examine the between groups’ change, it used Mann-Whitney Test for the pre- and post, results of the 2 treatments. In the pre-values, the results of the test disclosed that the P value before the 2 treatments was 0.505, which is greater than 0.05. Thus, it concludes that there was no statistically significant difference between the pain in group A and group B before the treatment. This means that the 2 groups are considerably identical. This also means that the participants of the 2 groups were having the same level of pain before the treatments.

Group	Pre-treatment	Post-treatment	Effect Size	P value
	Mean $\pm$ SD	Mean $\pm$ SD		
A (LBP exercises and PRT)	5.36 $\pm$ 0.51	1.63 $\pm$ 0.74	5.3	0.011
B (PRT)	5.88 $\pm$ 0.64	1.88 $\pm$ 1.12	4.31	0.011

Table 2: Comparison between pre- and post VAS score within groups.

VAS: Visual Analog Scale; SD: Standard Deviation; LBP: Low Back Pain; PRT: Positional Release Technique.

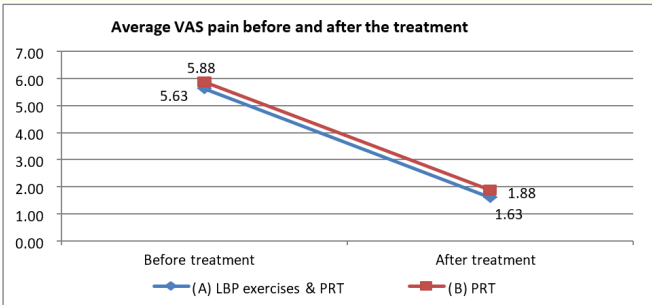


Chart 1: Average VAS pain before and after the treatment.

However, to test which treatment offered the best results, it applied the Mann-Whitney Test over the post results from the 2 treatments. The P value in post-tests was equal to 0.798, which is greater than 0.05. Therefore, it concludes that there is no statistically significant difference between the 2 treatments. This also mean that the 2 treatments have the same effect and reduce the pain in similar manner. Nevertheless, the effect size calculations suggest that the LBP exercises with PRT have higher effect than PRT without exercises on pain. The table 3 below illustrates these findings.

Group	Pre- treatment	Post-treatment	Effect Size
	Mean $\pm$ SD	Mean $\pm$ SD	
A (LBP exercise and PRT)	5.36 $\pm$ 0.51	1.63 $\pm$ 0.74	5.3
B (PRT)	5.88 $\pm$ 0.64	1.88 $\pm$ 1.12	4.31
P value	0.505	0.798	

Table 3: Comparison of pre- and post- VAS score in between groups.

VAS: Visual Analog Scale; SD: Standard Deviation; LBP: Low Back Pain; PRT: Positional Release Technique.

“24 item Roland-Morris Low Back Pain and Disability Questionnaire (RMQ)”. The patient is asked to tick a statement when it applies to him that specific day, this makes it possible to follow changes in time. The end score is the sum of the ticked boxes. The score

ranges from 0 (no disability) to 24 (max. disability). To test the within groups scores that have been generated from the Roland-Morris Low Back Pain and Disability Questionnaire (RMQ), it used effect size calculations and Wilcoxon Signed Ranks Test.

For group (A), the effect size calculations found that $d = 3$ which is a large effect size. Thus, it concludes that the power of the test is way higher than 80%. This means, a sample of 8 was enough to identify the influence of the treatment (Positional Release Technique with Exercises) on function.

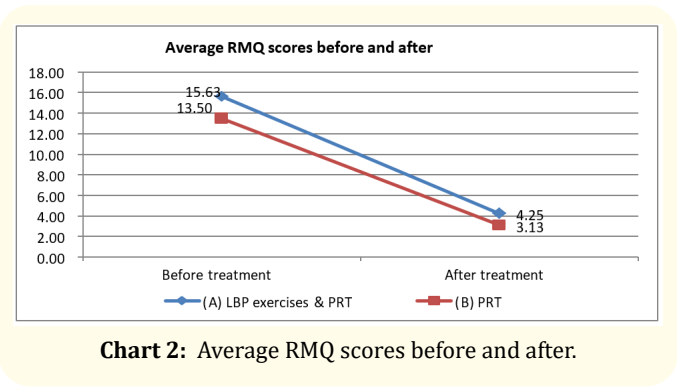
On the other side, the results of Wilcoxon Signed Ranks Test on group (A) showed that the P value is equal 0.012. This means that there is statistically significant difference between pre- and post RMQ scores. In group A, the average RMQ score before the Positional Release Technique with exercises was 15.63. While after the treatment, the RMQ score decreased to 4.25. Consequently, it can accept that PRT with exercise can improve chronic low back pain function significantly.

Similarly, the effect size calculations for group (B) found that $d = 4.7$ which is also a large effect size. Hence, it believes that the power of the test is way higher than 80%. This means, a sample of 8 is enough to detect the effect of PRT without exercise on function.

Moreover, the P value of Wilcoxon Signed Ranks Test for group B (PRT without exercise) was 0.012, which is greater than 0.05. Hence, it deduces that there is statically significant difference between pre- and post-scores of the Roland-Morris Low Back Pain and Disability Questionnaire (RMQ). Examining the average score of RMQ before and after the PRT without exercise treatment revealed that the average RMQ score in group B before the treatment was 13.5. In the post measures, the average decreased to 3.13. This also means that PRT without exercises can reduce RMQ scores significantly. This also means that PRT without exercises can improve chronic low back pain function significantly. The table 4 and chart 2 below depicts these results.

Group	Pre-treatment	Post-treatment	Effect Size	p value
	Mean $\pm$ SD	Mean $\pm$ SD		
A (LBP exercises and PRT)	15.63 $\pm$ 4.3	4.25 $\pm$ 1.28	3	0.012
B (PRT)	13.50 $\pm$ 1.6	3.13 $\pm$ 2.47	4.7	0.012

Table 4: Comparison of pre- and post- RMQ score within groups. RMQ: Roland-Morris Low Back Pain and Disability Questionnaire; SD: Standard Deviation; LBP: Low Back Pain; PRT: Positional Release Technique.



To evaluate pre- and post-RMQ scores in between groups, it employed Mann-Whitney Test. The test on the pre- treatment scores calculated a P value of 0.382, which is greater than $\alpha = 0.05$. Thus, it concludes that there is no statically significant difference between the 2 groups in RMQ scores before the treatments. Moreover, this means that the 2 groups are indistinguishable.

Correspondingly, the test on the post treatment scores revealed a P value of 0.234 which is higher than 0.05, and thus it infers that there is no statistically significant difference between group A and group B in RMQ scores after the treatments. This indicates that the 2 treatments have the same effect and reduce the pain in comparable way.

By looking at the effect size calculations it can see that the effect size for PRT without exercises is 4.7 which is higher that the effect size of PRT with exercise is 3. This implies that PRT alone can improve chronic low back pain function more efficiently compared to PRT with exercises. The table 5 below illustrates these findings.

Group	Pre- treatment	Post-treatment	Effect Size
	Mean $\pm$ SD	Mean $\pm$ SD	
A (LBP exercises and PRT)	15.63 $\pm$ 4.3	4.25 $\pm$ 1.28	3
B (PRT)	13.50 $\pm$ 1.6	3.13 $\pm$ 2.47	4.7
P value	0.382	0.234	

Table 5: Comparison of pre- and post- RMQ score between groups. RMQ: Roland-Morris Low Back Pain and Disability Questionnaire, SD: Standard Deviation; LBP: Low Back Pain; PRT: Positional Release Technique.

To study the effect of the 2 therapies on abdominal strength and endurance, it used “Curl Up test”. The Curl up test is important in back support and core stability.

To measure endurance, the researcher scored the total number of curl ups for each participant, up to a maximum of 79. The

completion of one complete curl up counts as one. Only correctly performed curl ups were counted. By design, the curl up test is pre-posttest. So, the progress of the subject measured by comparing the last results with previous attempts. To score the number of attempts, the researcher used the following normative data.

To compare between pre- and post- Curl up Test scores the researcher used effect size calculations and Wilcoxon Signed Ranks Test.

In group A, the effect size calculations yield a $d = 2.7$ which is a large effect size. Thus, it concludes that the power of the test is higher than 80%. This implies that a sample of 8 is enough to detect the effect of the treatment (Positional Release Technique with Exercises) on participants.

Furthermore, the outcomes of the Wilcoxon Signed Ranks Test revealed a P value equal to 0.011. This means that there is statistically significant difference between pre- and post- values of the test. The pre- average curl up attempts in group A was 11.57. This average increased to 22.25 after the Positional Release Technique with Exercises. So, it can conclude that the Positional Release Technique with Exercises increase abdominal strength and endurance significantly.

In group B, the effect size calculations produce a $d = 1.99$ which is a large effect size. Thus, it concludes that the power of the test is higher than 80%. This means, a sample of 8 is enough to detect the effect of the treatment (Positional Release Technique without Exercises) on patients.

The outcomes of the Wilcoxon Signed Ranks Test also revealed a P value equal to 0.017. This indicates that there is statistically significant difference between pre- and post- values of the test. The pre- average curl up attempts in group B was 11.13. This average increased to 20.13 after the Positional Release Technique without Exercises treatment. So, it can conclude that the Positional Release Technique without Exercises treatment increase abdominal strength and endurance significantly. The table 6 and chart 3 below depicts these findings.

To compare pre- and post- curl up test scores in between groups, it used Mann-Whitney Test. The test on the pre- treatment scores revealed P value of 0.721, which is greater than 0.05. Thus, it concludes that there is no statically significant difference between the 2 groups in curl up scores before the treatment. Moreover, this means that the 2 groups are indistinguishable. In the same way, the test on the post treatment scores revealed P value of 0.234. Again, this value is greater than 0.05, and thus it infers that there is no statistically significant difference between group A and group B in curl up test scores after the treatment. This also implies that

Group	Pre-treatment	Post-treatment	Effect Size	P value
	Mean $\pm$ SD	Mean $\pm$ SD		
A (LBP exercises and PRT)	11.75 $\pm$ 3.84	22.25 $\pm$ 5.44	2.7	0.011
B (PRT)	11.13 $\pm$ 4.54	20.13 $\pm$ 5.54	1.99	0.017

Table 6: Comparison of pre- and post- curl up test scores within groups.
Curl up scale.

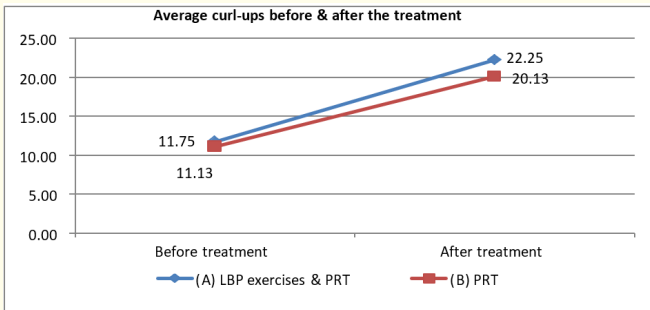


Chart 3: Average curl up attempt before and after.

the two treatments have the same effect on abdominal strength and endurance. However, if it looks at the effect size values, it can see that the effect size of PRT with exercises is higher than the effect size without exercises. Therefore, it can conclude that PRT with exercises increases the abdominal strength and endurance more efficiently than the PRT without exercises. The table 7 below shows these results.

Group	Pre- treatment	Post-treatment	Effect size
	Mean $\pm$ SD	Mean $\pm$ SD	
A (LBP exercises and PRT)	11.75 $\pm$ 3.84	22.25 $\pm$ 5.44	2.7
B (PRT)	11.13 $\pm$ 4.54	20.13 $\pm$ 5.54	1.99
P value	0.721	0.234	

Table 7: Comparison of pre- and post- curl up test scores between groups.
Curl up scale.

Discussion

The current study was conducted to compare the effect of positional release technique with or without exercises on pain, function, endurance in patients with chronic low back pain.

Low back pain is a considerable health problem in all developed countries and is most commonly treated in primary healthcare settings. It is usually defined as pain, muscle tension or stiffness local-

ized below the costal margin and above the inferior gluteal folds, with or without leg pain [13].

Chronic low back pain defined as lasting longer than 12 weeks. The main mechanical causes are either injury to lumbosacral muscles and ligaments, or disco genic disorders related to trauma or degenerative disc disease, lower back pain is a symptom, not an illness. Like Other symptoms, such as headache and dizziness [14].

16 patients undertaken in this study and have been divided into two groups, as for onset of pain, the average onset for group A was 22 months and for group B was 7.1 months, as for age, the average age for group A was 37, and for group B was 36. The Body Mass Index average (BMI) for group A was 26.3 while it was 14.8 in group B. 44% of the participants were males where 56% were females.

In our results were concluded that the LBP exercises with PRT have higher effect than PRT without exercises on pain, also it was concluded that PRT with exercises increases the abdominal strength and endurance more efficiently than the PRT without exercises. Finally, the PRT without exercise improve function more than PRT with exercises.

Positional release therapy, initially named strain-counterstrain, it is a therapeutic method that utilizes tender point and a position of comfort in order to resolve the associated dysfunction [15].

PRT is a technique that involves passive body positioning, which is claimed to elicit immediate and prolonged reductions in tenderness at trigger points and to reduce pain with musculoskeletal conditions [16].

Al-Shawabka, *et al.* in a previous study "Positional release technique versus manual pressure release on the upper trapezius muscle in patients with myofascial pain dysfunction syndrome" reported that the PRT group had a significant difference between pre-treatment and post-treatment values for pressure pain threshold [16]. On the other hand, in our study there was a statistically significant difference within the two group, on pain before the treatment and the pain after the treatment with positional release technique. By looking at our results and their results, it was seen that their result agreed ours.

Mohamed and El Shiwi in their study "Effect of therapeutic exercises with or without positional release technique in treatment of chronic mechanical low back pain patients, it was reported that there were no significant differences between groups in functional disability pre-treatment, and there was significant difference in favor of the group that had PRT on functional disability post-treatment [2]. On the other hand, in current study, it was found that there is statically significant difference between the two groups in RMQ scores before the treatment and after the treatment, but from

effect size calculation, it concludes that PRT alone can reduce low back pain more efficiently compared to PRT with exercises. By looking at our results and their results it was seen that their result not agreed ours.

Reema Joshi and Manisha Rathi in their study "Effect of muscle energy technique versus positional release technique on pain and functions in patients with trapezitis. The study concluded clinically muscle energy technique was more effective than positional release technique in subjects having trapezitis with non-specific neck pain [17]. Compared to our study, as the results it concludes that there is statistically significant difference between the pain before the treatment and the pain after the treatment with Positional Release Technique. After studying the means (averages) of pain, it discovered that the average pain before the treatment was 5.88 (0.64), while after the treatment the pain decreased to 1.88 (1.12). It means the PRT without exercises reduces chronic low back pain significantly. By looking at our results and their results, it was seen that their result not agreed ours.

Stretching is an exercise in which a specific muscle is flexed or stretched in order to improve the muscle elasticity and to achieve comfortable muscle tone. Goals of stretching exercises are to improve the joint range of motion (flexibility), decrease muscle tension, and improve circulation and relative muscle pain [18].

Mulla and Gosavi, in their study "Effect of stretching exercise and neural tissue mobilization in piriformis syndrome", 42 subjects had participated who were diagnosed with piriformis syndrome. Out of which 12 patients did not come for follow up out of 30 involved patients 16 were females and 14 were males. The mean age of subjects included in group A (experimental group) was 26.13 and group B (conventional group) was 25.06 [18].

Mulla and Gosavi reported the relationship between stretching exercise and RMQ, the pre-interventional Mean was 14.46 and the post-interventional mean was 4.4 for the group that used stretching exercise, RMQ on comparing pre-interventional values for group A and group B has no statistically significant difference. On the other hand, RMQ on comparing the post-interventional values for group A and group B has statistically extremely significant difference. And they have reported the relationship between stretching exercise and pain at VAS, the pre-interventional Mean was 9.13 and the post interventional mean was 2.33 post interventional value for VAS for group A and group B (which had stretching exercise) has statistically extremely significant difference [18].

Compared to our study as the results of stretching exercise with PRT on pain at VAS the pre interventional Mean was 5.36 and the post interventional Mean was 1.63, and by comparing pre-interventional and post-interventional for both groups, it concluded

that there was no statistically significant difference between the 2 treatments. After comparison, group A and group B have no significant difference on pain threshold but effect size calculations suggest that the LBP exercises with PRT have higher effect than PRT without exercises on pain in cases with chronic low back pain. But by looking at the mean value for VAS for both studies it see that the results were close together.

Endurance exercise also called aerobic exercise, endurance exercise includes activities that increase your breathing and heart rate [19].

Gulsah Ozsoy and Nursen Ilcin in their study "The effects of myofascial release technique combined with core stabilization exercise in elderly with non-specific low back pain. A total of forty-five participants were randomly divided into two groups, group A (myofascial release technique with core stabilization exercise), group B (core stabilization exercise). They reported the relationship between the non-specific low back pain with endurance exercise and it was found that the improvement in core stability endurance ($p = 0.031$) and spinal mobility ($p = 0.022$) was greater in the (CSE+MRT) group compared to the (CSE) group. There was no significant difference between the two groups in terms of endurance in NSLBP, and study suggests that myofascial release technique with a roller massager combined with core stabilization exercises can be a better choice in the treatment of NSLBP [19].

Compared to our study as the results with two group on endurance exercise (curl up test) it found that there is no statically significant difference between the 2 groups before and after the treatment on endurance, this also implies that the two treatments have the same effect on abdominal strength and endurance. However, if it looks at the effect size values, it can see that the effect size of PRT with exercises is higher than the effect size without exercises. Therefore, it can conclude that PRT with exercises increases the abdominal strength and endurance more efficiently than the PRT without exercises. By looking at our results and their results it can see that their result agreed ours.

Endurance exercise is considered to expedite the recovery process for patients with low back pain [20].

Prachi s Jain and Khushboo Bathia in their study "Effectiveness of Swiss Ball Exercises and Mini Stability Ball Exercises on Core Strength, Endurance and Dynamic Balance in Mechanical Low Back Pain": A total of 38 subjects between age group of 18 - 25 years were randomly allocated into group A and B to receive Swiss ball exercises and mini stability ball exercises respectively [20].

Prachi s Jain and Khushboo Bathia said that both, swiss ball exercises and mini stability ball exercises were effective in reducing

mechanical LBP, but mini stability ball exercises were more beneficial for improving core strength.

Compared to our study as the results for two groups on endurance (curl up test) it found that there is statistically significant difference between pre- and post- values within group of the test the Position. So, it can conclude that the Positional Release Technique without Exercises treatment increase abdominal strength and endurance significantly. But between groups were found, that there is no statically significant difference between the two groups in curl up scores before and after the treatment. By looking at our results and their results we can see that their result agreed ours.

Our strength points in this study were that chronic low back pain is a common condition. Also, the communication and the interactions between our group students. And our weakness points were that it had difficulties in communication with patients, also the period of the study was not fair enough to finish it and it didn't find enough studies about the relation between endurance and musculoskeletal pain.

Conclusion

It found that the LBP exercises with PRT have higher effect than PRT without exercises on pain, also it was concluded that PRT with exercises increases the abdominal strength and endurance more efficiently than the PRT without exercises. And finally, the PRT without exercise improve chronic low back pain function more than PRT with exercises.

Bibliography

1. Zakari Usman., *et al.* "Comparison of the Effects of Positional Release Therapy and Lumbar Stabilization Exercises in the Management of Chronic Mechanical Low Back Pain; Randomized Controlled Trial". *Critical Reviews in Physical and Rehabilitation Medicine* (2020).
2. Mohamed MN and El Shiwi AMF. "Effect of Therapeutic Exercises With or Without Positional Release Technique in Treatment of Chronic Mechanical Low Back Pain Patients: A Randomized Controlled Trial". *Egyptian Journal of Occupational Medicine* 38.2 (2014): 125-139.
3. Eldin Emad., *et al.* "Conventional Therapy Versus Positional Release Technique in the Treatment of Chronic Low Back Dysfunction". *International Journal of Physiotherapy and Research* 5.5 (2017): 2325-2331.
4. El Mohamed., *et al.* "Positional Release Versus Myofascial Release Technique in Chronic Low Back Dysfunction". *International Journal of ChemTech Research* 10.2 (2017): 496-522.

5. Leonardo OP Costa., *et al.* "Motor Control Exercise for Chronic Low Back Pain: A Randomized Placebo-Controlled Trial". *Physical Therapy* 89.12 (2009): 1275-1286.

6. Bronfort Gert., *et al.* "Supervised Exercise, Spinal Manipulation, and Home Exercise for Chronic Low Back Pain: A Randomized Clinical Trial". *Spine Journal* 11.7 (2011): 585-598.

7. Maitland Geoffrey D and Geoffrey Maitland. "The Slump Test : Examination and Treatment". *Australian Journal of Physiotherapy* 31.6 (1985): 215-219.

8. Bagwell., *et al.* "The reliability of faber test hip range of motion measurements". *International Journal of Sports Physical Therapy* 11.7 (2016): 1101-1105.

9. Haefeli M and Elfering A. "Pain assessment". *European Spine Journal* 15.1 (2006): S17-S24.

10. Stratford Paul W and Daniel L Riddle. "A Roland Morris Disability Questionnaire Target Value to Distinguish between Functional and Dysfunctional States in People with Low Back Pain". *Physiotherapy Canada* 68.1 (2016): 29-35.

11. Jared W and Moh H Malek. "NSCA's Essentials of Personal Training". Human Kinetics (Advantage) (Consignment); 2nd edition (2011).

12. Leon Chaitow. "Positional Release Techniques (Advanced Soft Tissue Techniques)". Elsevier; 4th edition (2015).

13. Casazza Brian A. "Diagnosis and Treatment of Acute Low Back Pain". *American Family Physician* 85.4 (2012): 343-350.

14. Maher Chris., *et al.* "Non-Specific Low Back Pain". *The Lancet* 389.10070 (2017): 736-747.

15. Speicher Tim and David Draper. "Top 10 Positional-Release Therapy Techniques to Break the Chain of Pain, Part 1". *Athletic Therapy Today* 11.5 (2006): 60-62.

16. Al-Shawabka., *et al.* "Positional Release Technique Versus Manual Pressure Release on the Upper Trapezius Muscle in Patients with Myofascial Pain Dysfunction Syndrome". *Bulletin of Faculty of Pharmacy, Cairo University* 18.1 (2013): 55-63.

17. Reema Joshi., *et al.* "Effect of Muscle Energy Technique on Pain and Function in Patients with Sacroiliac Dysfunction-Experimental Study". *International Journal of Scientific Research and Education* 5.06 (2017): 2113-2115.

18. Nakamura Kouichi., *et al.* "Effects of Active Individual Muscle Stretching on Muscle Function". *Rigakuryoho Kagaku* 27.6 (2012): 687-691.

19. Ozsoy Gulsah., *et al.* "Response to: Non-Specific Low Back Pain in Elderly and the Effects of Myofascial Release Technique Combined with Core Stabilization Exercise". *Clinical Interventions in Aging* 14 (2019): 1947-1949.

20. Manikandan A., *et al.* "Comparative Study on Levels of Troponin (CTn), Creatine Kinase-Muscle/Brain (CK-Mb), and b-Type Natriuretic Peptide (BnP) in Patients with Acute Myocardial Infraction and Congestive Cardiac Failure". *Indian Journal of Public Health Research and Development* 10.5 (2019): 183.

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Citation: Azzam Alarab., *et al.* "Effect of Positional Release Technique with/Out Exercise in Treatment of Chronic Low Back Pain Patients". *Acta Scientific Orthopaedics* 3.6 (2020): 18-27.

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