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Effectiveness of exercise therapy to reduce pain on lumbar hyper lordosis middle aged women

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Abstract
Importance of this article is knowing about human back and lumbar spine. This article answer to important questions such as what is lordosis deformity? How lordosis deformity is happening? What is exercise therapy and William exercise? How William exercise effect on pain in lordosis deformity. The peruse of this study was to assess the effect of exercise therapy for reduce pain in lower back. The data were considered in relation to recommended levels of exercise therapy can be effective helping to reduce pain in middle aged women who had hyper lordosis deformity. level of participation in twelve week William exercises were explored. The participants in this study were 20 middle ages women.10 were experimental group (affected by hyper lordosis deformity with lower back pain) and 10 were control group (affected by hyper lordosis with lower back pain). The sample was collected through non- random sampling method. Mc gill questioner pain was used to measure participants (only experimental group). Through the spss software the following results were concluded. The result showed experimental group that did William exercises have significantly pain reduction. Pain Rating Index 0 = no pain, Pain-free, 1 = mild, Pain is very mild, barely noticeable, 2 = moderate, it can't be ignored for more than a few minutes, 3 = severe, pain that dominates your senses and significantly limits your ability to perform normal daily activities.

Keywords: William exercise, hyper lordosis, lower back pain

1. Introduction
The human spine is formed by a series of curves from the head down to the coccyx (tail bone). When viewed from the side, an adult spine has a natural S-shaped curve. Inappropriate physical movements or long-term undesirable situations People cause abnormalities Leading to disturbances in different systems of the body, including the musculoskeletal system and numerous complications such as pain and deformity. Muscle pain can involve a small area or your whole body, ranging from mild to excruciating. Muscle pain is the achy, sore pain that increases with movement or with pressure on the affected muscle (Lisa and Kemper 2018) [1]. One of the most important parts of the spine which, if it is abnormal can Interrupts the body in a standing position. The excessive normalization of the lumbar vertebrae is called lordosis. Hyper Lordosis is a condition where there is an increased inner curvature of the spine. If this spinal curvature increases more than 60 degrees, then it puts a lot of pressure or strain on the other regions of the spine resulting in pain. if the lordosis is mild, then treatment is usually not required. If the patient is experiencing symptoms or discomfort, then the patient can enroll in a physical therapy program where exercises can be done, under the guidance of a therapist, in order to strengthen the muscles and to increase the range of motion (Stephanie, Anthony, and Stuart 2013).
Physical therapy and back exercises to treat back pain in the lower spine usually focus on strengthening the flexor, extensor and oblique muscles to help reinforce support of the spine. In order to reduce pain, the lumbar lordosis in people with lordosis angle there are many different therapeutic protocols that are one of them use of corrective exercises. But so far no one has investigated the impact of Williams' exercises on Hyper lordosis. One of the primary modalities in the management nof back pain is exercise. While various forms of exercise have been used for many years. This set of six exercises dominated the back pain world for many years. In general, Williams felt that back pain was the result of the lumbar lordosis. In fact, Williams "first commandment for back and leg pain sufferers" was, "Always sit, stand, walk

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and lie in a way that reduces the lumbar lordosis to a minimum (Ko, *et al.*, 2018).

Many therapists believe that having a "normal" spinal curve is associated with less or no back pain. Thus, people with too much or too little lordosis are at a higher risk of getting low back pain. Postural changes are sometimes a risk factor for low back pain. Abnormal posture creates a strain on ligaments and muscles that indirectly affects the curvature of the lumbar spine. Any changes in the curves of the spine will cause some muscles to stretch and some muscles to shorten, contributing to instabilities in the spine. This instability leads to chronic tension in certain muscle groups and increased strain on joints. Abdominal muscles being weaker than the muscles in the lumbar spine and the hamstring muscles, there is an imbalance which results in the pelvis being pulled forward of the body, creating the exaggerated arch or "swayback" in the spine (Morrison, and Gabbey, 2016) [2].

Therapists measure the pain in patient with MGill test. Magill pain questionnaire: The McGill Pain Questionnaire can be used to evaluate a person experiencing significant pain. It can be used to monitor the pain over time and to determine the effectiveness of any intervention.

The aim of the present study was to Effectiveness of exercise therapy to reduce pain on lumbar hyper lordosis. William exercise has been shown positively influence of lumbar lordosis pain. This effect was measured in sample of middle aged women in two experimental and control group. It was hypothesized that 12-week Williams exercises no effect on pain in hyper lordosis of Iranian middle aged women. It was also hypothesized that there is no difference between experimental group and control group.

2. Methodology
2.1 Sample
In the present study selected twenty samples, who affected by hyper-lordosis as the experimental group (10 member) and control group (10 member). From women employed in the oil industry, three are in high-ranking positions (over-grade) and eight in high- ranking positions (GRID), and 350 in the headquarters and presidency.120 women are working in the Isfahan Refinery 38 of them which have hyper lordosis. twenty samples were identified among population.

2.2 Description of Questionnaire
A short form of the McGill Pain Questionnaire (SF-MPQ) has been developed. The main component of the SF-MPQ consists of 15 descriptors (11 sensory; 4 affective) which are rated on an intensity scale as 0 = none, 1= mild, 2 = moderate or 3 = severe. Three pain scores are derived from the sum of the intensity rank values of the words chosen for sensory, affective and total descriptors. The SF-MPQ also includes the Present Pain Intensity (PPI) index of the standard MPQ and a visual analogue scale (VAS). The SF-MPQ scores obtained from patients in post-surgical and obstetrical wards and physiotherapy and dental departments were compared to the scores obtained with the standard MPQ

2.3 Data collection
Patients with hyper lordosis were identified in the clinic under the supervision of the physician. Subjects with Hyper lordosis were all with back pain, (muscle pain) that had previously been diagnosed by a doctor.

2.4 Statistical method
To assess the effectiveness of exercise therapy to reduce pain on lumbar hyper lordosis middle aged women of experimental and control groups, the raw dart was collected with the help of 15 questions. From the obtained raw scores, Mean, SD and ANOVA. Were calculated by using SPSS. 22

3. Results
To examine the Effectiveness of William exercise to reduce pain among experimental and control groups, Mean, SD and ANOVA. were calculated and data pertaining to this has been presented in Table 1 to 30.

Time allocated	In first month six exercises the time which allocated is 40 sec and the time for one day is about an hour and twenty minutes.
	In second month of six exercises the time which allocated is 40 sec and the time for one day is about an hour and twenty minutes.
	In third month of six exercises the time which allocated is 40 sec and the time for one day is about an hour and twenty minutes.
Organization based on sets (for three times a week)	six exercises of the first month include one set
	six exercises of the second month include one set
	six exercises of the third month include one set
Intensity	The intensity of the first month during one months is the 40$
	The intensity of the second month during one months is the 70%
	The intensity of the third month during one months is the 100%

exercise	Type of exercise	Time allocated for performance	Repetition	Time allocated for rest between each exercises
Exercise no.1 posterior pelvic	Strength exercise	40 second	Depend on ability	2 and half minutes
Exercise no.2 single knee to chest stretch	Strength exercise	40 second	Depend on ability	2 and half minutes
Exercise no.3 double knee to	Strength exercise	40 second	Depend on ability	2 and half minutes
Exercise no.4 standing lumbar flexion	Endurance exercise	40 second	Depend on ability	2 and half minutes
Exercise no.5 partial	Endurance exercise	40 second	Depend on ability	2 and half minutes
Exercise no.6 partial diagonal sit-	Endurance exercise	40 second	Depend on ability	2 and half minutes

Table 1: Descriptive Statistics of Throbbing Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	
Experimental (N=10)	2.80	0.632	2.30	0.483	1.30	0.674	0.40	0.699	2.40
Control (N=10)	2.80	0.422	2.70	0.483	2.70	0.483	2.70	0.483	0.10
Total (N=20)	2.80	0.523	2.50	0.512	2.00	0.917	1.55	1.316	1.25

Table 1 reveals that experimental group had a gain of 2.40 degrees change from pretest to 3 months (pre 2.80; post 0.40) in throbbing pain. In case of control group which had gained only 0.10 degrees (pre 2.80; post 2.70) in case of throbbing pain. Irrespective of the groups on the whole, an increase of 1.25 degree change from pre to 3 months observed (pre 28.00; 3 months 1.55).

Table 2: Repeated Measure Anova on Throbbing Pain During Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	18.238	3	6.079	50.699
Change * Group	16.038	3	5.346	44.583
Error(Change)	6.475	54	.120	

Significant at .05 level, $F_{.05}$ (3, 54)= 2.79

Table 2 reveals that there was significant increase in mean degree values (F=50.699; p=.001) in case of throbbing pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=44.583; p=.001).

Table 3: Descriptive Statistics of Shooting Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.00	.000	1.80	.422	1.10	.316	.40	.516	1.60
Control (N=10)	1.90	.316	1.10	.316	1.10	.316	1.10	.316	0.80
Total (N=20)	1.95	.223	1.45	.510	1.10	.307	.75	.550	1.20

Table 3 reveals that experimental group had a gain of 1.60 degrees change from pretest to 3 months (pre 2.00; post 0.40) in shooting pain. In case of control group which had gained only 0.80 degrees (pre 1.10; post 2.70) in case of shooting pain. Irrespective of the groups on the whole, an increase of 1.2 degree change from pre to 3 months observed (pre 1.95; 3 months 0.75).

Table 4: Repeated Measure Anova On Shooting Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	15.737	3	5.246	69.515
Change * Group	4.938	3	1.646	21.810
Error(Change)	4.075	54	.075	

Significant at .05 level, $F_{.05}$ (3, 54)= 2.79

Table 4 reveals that there was significant increase in mean degree values (F=69.515; p=.001) in case of shooting pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=21.810; p=.001).

Table 5: Months Duration of Experimental and Control Group Descriptive Statistics of Stabbing Pain During Pre, 1- Month, 2- Months

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.00	.000	1.80	.422	1.00	.000	.70	.483	1.30
Control (N=10)	1.70	.483	1.70	.483	.90	.738	.90	.738	0.80
Total (N=20)	1.85	.366	1.75	.444	.95	.510	.80	.616	1.05

Table 5 reveals that experimental group had a gain of 1.30 degrees change from pretest to 3 months (pre 2.00; post 0.70) in stabbing pain. In case of control group which had gained only 0.80 degrees (pre 1.70; post 0.90) in case of stabbing pain. Irrespective of the groups on the whole, an increase of 1.05 degree change from pre to 3 months observed (pre 1.85; 3 months 0.80).

Table 6: Repeated Measure Anova On Stabbing Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	17.438	3	5.813	75.180
Change * Group	.638	3	.213	2.749
Error(Change)	4.175	54	.077	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 6 reveals that there was significant increase in mean degree values (F=75.180; p=.001) in case of stabbing pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a insignificant difference between the experimental and control groups (F=2. 749; p=.001).

Table 7: Descriptive Statistics of Sharp Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.80	.422	1.80	.422	.80	.632	.50	.527	1.30
Control (N=10)	1.70	.483	1.70	.483	1.70	.483	.90	.737	0.80
Total (N=20)	1.75	.444	1.75	.444	1.25	.716	.70	.656	1.05

Table 7 reveals that experimental group had a gain of 1.30 degrees change from pretest to 3 months (pre 1.80; post 0.50) in sharp pain. In case of control group which had gained only 0.80 degrees (pre 1.70; post 0.90) in case of sharp pain. Irrespective of the groups on the whole, an increase of 1.05 degree change from pre to 3 months observed (pre 1.75; 3 months 0.70).

Table 8: Repeated Measure Anova on Sharp Pain during Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	13.638	3	4.546	46.536
Change * Group	2.838	3	.946	9.682
Error(Change)	5.275	54	.098	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 8 reveals that there was significant increase in mean degree values (F=46.536; p=.001) in case of sharp pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=9.682; p=.001).

Table 9: Descriptive Statistics of Cramping Pain during Pre, 1- Month, 2- Months and 3 -Months Duration Of Experimental And Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.80	.632	2.40	.699	1.60	.516	.90	.316	1.90
Control (N=10)	2.80	.632	2.80	.632	2.80	.632	2.80	.632	0.00
Total (N=20)	2.80	.616	2.60	.680	2.20	.833	1.85	1.089	0.95

Table 9 reveals that experimental group had a gain of 1.90 degrees change from pretest to 3 months (pre 2.80; post 0.90) in cramping pain. In case of control group which had gained only 0.00 degrees (pre 2.80; post 2.80) in case of cramping pain.. Irrespective of the groups on the whole, an increase of 0.95 degree change from pre to 3 months observed (pre 2.80; 3 months 1.85).

Table 10: Repeated Measure Anova On Cramping Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	10.737	3	3.579	59.015
Change * Group	10.737	3	3.579	59.015
Error(Change)	3.275	54	.061	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 10 reveals that there was significant increase in mean degree values (F=59.015; p=.001) in case of cramping pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=59.015; p=.001).

Table 11, 3: Months Duration Of Experimental And Control Group Descriptive Statistics Of Gnawing Pain During Pre, 1- Month, 2- Months

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.10	.567	1.90	.567	1.00	.000	.30	.483	1.80
Control (N=10)	2.00	.000	2.00	.000	1.90	.316	1.90	.316	0.10
Total (N=20)	2.05	.394	1.95	.394	1.45	.510	1.10	.911	0.95

Table 11 reveals that experimental group had a gain of 1.80 degrees change from pretest to 3 months (pre 2.10; post 0.30) in gnawing pain. In case of control group which had gained only 0.10 degrees (pre 2.00; post 1.90) in case of gnawing pain. Irrespective of the groups on the whole, an increase of 0.95 degree change from pre to 3 months observed (pre 2.05; 3 months 1.10).

Table 12: Repeated Measure Anova On Gnawing Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	11.837	3	3.946	49.842
Change * Group	9.138	3	3.046	38.474
Error(Change)	4.275	54	.079	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 12 reveals that there was significant increase in mean degree values (F=49.842; p=.001) in case of gnawing pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=38.474; p=.001).

Table 13: Months And 3 -Months Duration Of Experimental And Descriptive Statistics Of Hot Burning Pain During Pre, 1- Month, 2- Control Group

Group	Duration								Change
	Pre test				2 months				
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.80	.422	1.80	.421	1.00	.667	.600	.699	1.30
Control (N=10)	1.00	.000	1.00	.000	1.00	.000	1.00	.000	0.00
Total (N=20)	1.40	.502	1.40	.503	1.00	.459	.800	.523	0.60

Table 13 reveals that experimental group had a gain of 1.30 degrees change from pretest to 3 months (pre 1.80; post 0.60) in hot burning pain. In case of control group which had gained only 0.00 degrees (pre 1.00; post 1.00) in case of hot burning pain. Irrespective of the groups on the whole, an increase of 0.60 degree change from pre to 3 months observed (pre 1.40; 3 months 0.80).

Table 14: Repeated Measure Anova On Hot Burning Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	5.40	3	1.80	30.375
Change * Group	5.40	3	1.80	30.375
Error(Change)	3.20	54	.059	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 14 reveals that there was significant increase in mean degree values (F=30.375; p=.001) in case of hot burning pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=30.375; p=.001).

Table 15: Descriptive Statistics of Aching Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test				2 months				
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.70	.483	2.20	.422	1.40	.516	.90	.568	1.80
Control (N=10)	2.40	.516	2.40	.516	2.40	.516	2.40	.516	0.00
Total (N=20)	2.55	.510	2.30	.470	1.90	.718	1.65	.933	0.90

Table 15 reveals that experimental group had a gain of 1.80 degrees change from pretest to 3 months (pre 2.70; post 0.90) in aching pain. In case of control group which had gained only 0.00 degrees (pre 2.40; post 2.40) in case of aching pain.. Irrespective of the groups on the whole, an increase of 0.90 degree change from pre to 3 months observed (pre 2.55; 3 months 1.62).

Table 16: Repeated Measure Anova On Aching Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	9.700	3	3.233	37.957
Change * Group	9.700	3	3.233	37.957
Error(Change)	4.600	54	.085	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 16 reveals that there was significant increase in mean degree values (F=37.957; p=.001) in case of aching pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=37.957; p=.001).

Table 17: 3-Months Duration Of Experimental And Control Group Descriptive Statistics Of Heavy Pain During Pre, 1- Month, 2- Months And

Group	Duration								Change
	Pre test				2 months				
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.30	.823	2.00	.667	1.20	.632	.400	.699	1.90
Control (N=10)	2.30	.632	2.00	.632	2.20	.632	2.00	.817	0.20
Total (N=20)	2.25	.716	2.10	.640	1.70	.801	1.20	1.10	1.15

Table 17 reveals that experimental group had a gain of 1.90 degrees change from pretest to 3 months (pre 2.30; post 0.40) in heavy pain. In case of control group which had gained only 0.20 degrees (pre 2.20; post 2.00) in case of heavy pain. Irrespective of the groups on the whole, an increase of 1.15 degree change from pre to 3 months observed (pre 2.25; 3 months 1.20).

Table 18: Repeated Measure Anova on Heavy Pain during Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	13.238	3	4.413	46.951
Change * Group	8.938	3	2.979	31.700
Error(Change)	5.075	54	.094	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 18 reveals that there was significant increase in mean degree values (F=46.951; p=.001) in case of heavy pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=31.700; p=.001).

Table 19: Descriptive Statistics of Tender Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.70	.483	1.60	.516	1.0000	.471	.800	.632	0.90
Control (N=10)	1.00	.000	1.00	.000	1.0000	.000	1.00	.000	0.00
Total (N=20)	1.35	.489	1.30	.470	1.0000	.324	.900	.447	0.45

Table 19 reveals that experimental group had a gain of 0.90 degrees change from pretest to 3 months (pre 1.70; post 0.80) in tender pain. In case of control group which had gained only 0.00 degrees (pre 1.00; post 1.00) in case of tender pain. Irrespective of the groups on the whole, an increase of 1.15 degree change from pre to 3 months observed (pre 2.25; 3 months 1.20).

Table 20: Repeated Measure Anova on Tender Pain during Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	2.938	3	.979	15.667
Change * Group	2.937	3	.979	15.667
Error(Change)	3.375	54	.063	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 20 reveals that there was significant increase in mean degree values (F=15.667; p=.001) in case of tender pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=15.667; p=.001).

Table 21: Descriptive Statistics of Splitting Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.80	.632	1.50	.527	2.00	.666	.20	.422	1.60
Control (N=10)	2.10	.567	2.10	.568	1.60	.680	2.00	.667	0.10
Total (N=20)	1.95	.604	1.80	.616	.20	.422	1.10	1.07	0.85

Table 21 reveals that experimental group had a gain of 1.60 degrees change from pretest to 3 months (pre 1.80; post 0.20) in splitting pain. In case of control group which had gained only 0.10 degrees (pre 2.10; post 2.00) in case of splitting pain. Irrespective of the groups on the whole, an increase of 0.85 degree change from pre to 3 months observed (pre 1.95; 3 months 1.10).

Table 22: Repeated Measure Anova on Splitting Pain During Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	8.238	3	2.746	31.717
Change * Group	6.338	3	2.113	24.401
Error(Change)	4.675	54	.087	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 22 reveals that there was significant increase in mean degree values (F=31.717; p=.001) in case of splitting pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=24.401; p=.001).

Table 23: Months Duration of Experimental And Control Group Descriptive Statistics Of Tring Exhausting During Pre, 1- Month, 2- Months

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.60	.516	1.40	.516	.70	.675	.50	.528	1.10
Control (N=10)	2.00	.471	1.90	.567	2.00	.471	2.00	.471	0.00
Total (N=20)	1.80	.523	1.65	.587	1.35	.875	1.25	.910	0.55

Table 23 reveals that experimental group had a gain of 1.10 degrees change from pretest to 3 months (pre 1.60; post 0.50) in tring exhausting pain. In case of control group which had gained only 0.00 degrees (pre 2.20; post 2.00) in case of tring exhausting pain. Irrespective of the groups on the whole, an increase of 0.55 degree change from pre to 3 months observed (pre 1.80; 3 months 1.25).

Table 24: Repeated Measure Anova On Tring Exhausting During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	3.938	3	1.313	10.618
Change * Group	4.638	3	1.546	12.506
Error(Change)	6.675	54	.124	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 24 reveals that there was significant increase in mean degree values (F=10.618; p=.001) in case of tring exhausting pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=12.506; p=.001).

Table 25: Descriptive Statistics of Sickening Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	2.00	471	1.50	.527	.80	422	.30	483	1.70
Control (N=10)	2.10	738	2.10	738	2.00	817	2.00	816	0.10
Total (N=20)	2.05	605	1.80	696	1.40	883	1.15	1.09	0.90

Table 25 reveals that experimental group had a gain of 1.70 degrees change from pretest to 3 months (pre 2.00; post 0.30) in sickening pain. In case of control group which had gained only 0.10 degrees (pre 2.10; post 2.00) in case of sickening pain. Irrespective of the groups on the whole, an increase of 0.90 degree change from pre to 3 months observed (pre 2.05; 3 months 1.15)

Table 26: Repeated Measure Anova On Sickening Pain During Pre, One Month, 2 Months And 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	9.700	3	3.233	34.920
Change * Group	7.300	3	2.433	26.280
Error(Change)	5.000	54	.093	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 26 reveals that there was significant increase in mean degree values (F=34.920; p=.001) in case of sickening pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=26.280; p=.001).

Table 27: Descriptive Statistics of Fearful Pain during Pre, 1- Month, 2- Months and 3 -Months Duration of Experimental and Control Group

Group	Duration								Change
	Pre test		One month		2 months		3 months		
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.60	.699	1.50	.707	.90	.738	.60	.516	1.00
Control (N=10)	2.00	.667	2.00	.667	2.00	.667	2.00	.667	0.00
Total (N=20)	1.80	.696	1.75	.716	1.45	.887	1.30	.923	0.50

Table 27 reveals that experimental group had a gain of 1.00 degrees change from pretest to 3 months (pre 1.60; post 0.60) in fearful pain. In case of control group which had gained only 0.00 degrees (pre 2.00; post 2.00) in case of fearful pain.

Irrespective of the groups on the whole, an increase of 0.50 degree change from pre to 3 months observed (pre 1.80; 3 months 1.30).

Table 28: Repeated Measure Anova on Fearful Pain during Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	3.450	3	1.150	12.176
Change * Group	3.450	3	1.150	12.176
Error (Change)	5.100	54	.094	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 28 reveals that there was significant increase in mean degree values (F=12.176; p=.001) in case of fearful pain,. However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=12.176; p=.001).

Table 29: Descriptive Statistics of Punishing-Cruel Pain During Pre, 1- Month, 2- Months and 3 -Months Duration Of Experimental And Control Group

Group	Duration								Change
	Pre test				2 months				
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D	
Experimental (N=10)	1.50	.707	1.30	.483	.70	.483	.20	.422	1.30
Control (N=10)	2.00	.667	2.00	.667	2.00	.667	2.00	.667	0.00
Total (N=20)	1.75	.716	1.65	.670	1.35	.875	1.10	1.07	0.00

Table 29 reveals that experimental group had a gain of 1.30 degrees change from pretest to 3 months (pre 1.50; post 0.20) in punishing cruel pain. In case of control group which had gained only 0.00 degrees (pre 2.00; post 2.00) in case of punishing cruel pain. Irrespective of the groups on the whole, an increase of 0.65 degree change from pre to 3 months observed (pre 1.75; 3 months 1.10).

Table 30: Repeated Measure Anova on Punishing-Cruel Pain during Pre, One Month, 2 Months and 3 Months Duration

Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Change	5.238	3	1.746	15.024
Change * Group	5.238	3	1.746	15.024
Error(Change)	6.275	54	.116	

Significant at .05 level, F.05 (3, 54)= 2.79

Table 30 reveals that there was significant increase in mean degree values (F=15.024; p=.001) in case of punishing cruel pain, However, when group wise comparison was made, again repeated measure ANOVA revealed a significant difference between the experimental and control groups (F=15.024; p=.001).

4. Discussion
Significant change in mean degree values was observed between experimental group and control group in reduction of all type of pain symptoms except stabbing pain symptom. More change in mean values of pain reduction symptoms by implementing William exercise in 12 week program

5. Conclusion
The result showed experimental group that did William exercises have significantly pain reduction. Pain Rating Index 0 = no pain, Pain-free, 1 = mild, Pain is very mild, barely noticeable, 2 = moderate, it can't be ignored for more than a few minutes, 3 = severe, pain that dominates your senses and significantly limits your ability to perform normal daily activities.

6. References
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