

## Review Article

# A Review on Effects of Exercises Therapy for Office Workers with Chronic Non-Specific Low Back Pain

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### Abstract:

**Study Design:** A literature review was conducted in order to provide an overview of the effect of exercise therapy for office workers with chronic Non-specific low back pain. Review provides a summary of large bodies of evidence and reviews help to explain differences among studies.

**Objectives:** The aim of this study is to review exercises therapy for office workers with chronic nonspecific low back pain treatment.

**Background:** Low back pain is a common syndrome that causes disability and absence from work. Although there are several causes, the most common type of back pain is nonspecific. Exercises are often used to treat back pain, but there is controversy regarding its effectiveness. Exercise therapy is widely used as an intervention in low back pain. Low back pain is defined as discomfort that develops above the posterior gluteal lines and below the costal edge of the final ribs, with or without lower limb pain(1). Between 60 and 85% of people experience it at some point throughout their lives(2).

**Methods:** Search strategy: Relevant articles were identified by engines such as SCIENCE DIRECT, PUBMED, GOOGLESCHOLAR, and COCHRANE DATA BASE OF SYSTEMATIC REVIEW ([www.cochrane.org](http://www.cochrane.org)), and CINALE. Website like physiopeedia ([www.physiopeedia.com](http://www.physiopeedia.com)) was searched and published texts were also reviewed in these studies.

## Introduction

The main source of disability is low back pain (LBP). Low back pain is defined as discomfort that develops above the posterior gluteal lines and below the costal edge of the final ribs, with or without lower limb pain(1) One of the most prevalent musculoskeletal conditions worldwide, including Iran, is non-specific chronic low back pain (NSCLBP). Therapeutic ultrasonography (US) is one of the modalities in physiotherapy that is most frequently employed. Although it is frequently used, there is currently conflicting evidence to support its efficacy in NSCLBP patients. This study's goal was to assess the effectiveness of continuous US to placebo US in addition to exercise therapy for patients with NSCLBP. Methods. 50 NSCLBP patients were randomly assigned to one of two treatment groups in this single-blind, placebo-controlled trial. The treatment groups were: 1) Constant US (1 MHz & 1.5 W/cm<sup>2</sup>) with workout 2) US placebo plus physical activity. The duration of the patients' therapy was four weeks, with ten treatment sessions occurring every other week. Between 60 and 85% of people experience it at some point throughout their lives(2). The most prevalent musculoskeletal ailment is and(3) [3-5]. It is advised that people with non-specific chronic low back pain continue to be physically active because extended periods of inactivity are damaging to their healing.(4). One of the most common medical issues that keeps people from going to work is low back pain, and the resulting damage has a clear economic impact(5). Low back pain (LBP) can also cause restrictions in movement, including those related to carrying objects, sitting or standing

for extended periods of time, bending, and squatting. These restrictions can lead to decreased participation in activities (at work, in leisure activities, with family, and in the community), which can impair functional abilities(6). According to a previous systematic review(7), the point prevalence of low back pain is estimated to be 21.33 percent, and the one-year prevalence ranges from 22 to 65 percent. According to statistics(8), the lifetime prevalence of low back pain is as high as 84% worldwide. As a result, a lot of these people visit medical centres frequently to find drugs that help lessen the severity of their symptoms. One of the best therapies for chronic nonspecific low back pain, exercise therapy under supervision(9), with a component of education 9, has been praised for lowering pain and disability[12,13,14]. Exercises of many kinds are used, including aerobics, flexion and extension, stretching, stabilisation, balance exercises, and coordination exercises. A single muscle (such as the multifidus or transverse abdominis) or a collection of muscles, such as the torso and abdomen, might be the focus of a muscle strengthening exercise. Only one review with a sizable sample size discovered proof that regular exercise lowers LBP and, thus, absence from work. Exercise lessens the severity of LBP and aids in the patient's rehabilitation, but it cannot stop a recurrence (10). Classification The three kinds of LBP are mechanical, non-mechanical, and psychogenic. Specific or nonspecific mechanical LBP are both possible. LBP can be acute (sudden onset and less than six weeks), subacute (six to twelve weeks), chronic (greater than twelve weeks), or persistent (lasting more than twelve weeks).

Low back pain has long been the most common reason for work absences as well as the most common reason for seeking medical treatment (1, 2). In recent years, the only other condition that has led to early retirement owing to loss of ability to work is musculoskeletal illness (11). In 2010, 26% of German individuals who were enrolled in the country's mandated national health insurance programme sought medical attention at least once due to low back discomfort (12). Many new components can be found in the German Disease Management Guideline (NDMG) update on non-specific low back pain (13). More attention is placed on psychosocial and work-related aspects, numerous imaging procedures are discouraged, and early multidisciplinary assessment is advised, among other things.

Although low back pain is a widespread medical condition, prevention and treatment of chronic low back pain (CLBP) is particularly important for public health [1,2]. It is widely acknowledged as the main contributor of disability, having a significant negative impact on societal burden and economic performance at work [2]. In industrialised nations, the estimated lifetime prevalence of CLBP ranges from 12% to 33% (period prevalence: 22% to 65% per year) [3]. Adults are more likely than kids and teenagers to have CLBP [4, especially among the working population [5]]. Medications (such as nonsteroidal anti-inflammatory drugs, analgesics, and muscle relaxants) are frequently used to treat CLBP in order to reduce discomfort, inflammation, and muscular tension(14)(15)(16).Several studies looked into how mindful activities affected persons with CLBP. Two evaluations were subsequently conducted and released in 2013 (17) (18)(19)(20)(19)in response to the rising quantity of experimental investigations on this subject. Importantly, these two systematic reviews concentrated solely on Yoga and only included eight to ten RCTs. Second, due to the limited number of trials, meta-analysis was only feasible for the Yoga interventions vs non-active controls, leaving out a direct comparison to active control conditions such traditional workouts or treatments supported by guidelines.

The most prevalent musculoskeletal illness and a major health concern in Western nations, back pain is also linked to rising medical costs and lost workdays (21)[1,2]. Low back pain affects 60–80% of adults at some point in their life, and 16% of adults in the United Kingdom (UK) visit their general practitioner annually [9]. Back discomfort accounts for 12.5% of all UK work absences and costs the National Health Service (NHS) £1.3 million per day [10, 11]. The best treatment for non-specific chronic low back pain (NSCLBP) is still unclear, albeit . Long stretches of inactivity will negatively impact recovery, hence it is advised that individuals with NSCLBP continue to be physically active [13,14]. Low-to-moderate intensity aerobic exercise [15,16], high intensity aerobic exercise [17,18], core stability and muscular strength exercises (22)(23)(24)(25)(26), Across the entire world, non-specific low back pain (LBP) is the main factor contributing to years spent disabled. The therapy of LBP includes physical activity. **OBJECTIVE:** To critically evaluate the information that is currently available addressing the benefits of exercise for those with LBP. **METHODS:** Current critical narrative review of the

effectiveness of exercise in managing LBP. Articles were chosen based on the expertise, self-knowledge, and reflective practice of the authors in an ad hoc manner. **RESULTS:** Numerous non-specific and particular activities are included in therapeutic physical exercise for LBP. Physical activity's effectiveness in reducing pain and activity restrictions has been extensively studied. Exercise did not lessen pain in acute or subacute LBP when compared to no exercise. Exercise can help those with persistent low back pain (CLBP). and flexibility programmes are only a few of the numerous types of exercise that have been investigated to treat CLBP. As a result of the intricacy of NSCLBP [17] and the paucity of data [6,28], it is unknown what type of exercise is the most helpful for NSCLBP rehabilitation (27)(28)(29)(30).For patients with CLBP, physical activity (PA) that increases aerobic capacity and muscular strength, particularly of the lumbar extensor muscles, is crucial for helping them complete daily activities (31)(32)(33)(34). However, it has been discovered that the effectiveness of various workouts in decreasing lower back pain varies . Furthermore, excessive or insufficient PA may be linked to low back pain indicating the complexity of PA as a treatment for low back pain.

Exercise therapy has been shown to be an effective treatment for non-specific chronic lower back pain. There are several types of exercise therapy that have been found to be effective in treating non-specific chronic lower back pain. These include:

### **Classification**

Mechanical, non-mechanical, and psychogenic LBP are the three types of LBP. Mechanical LBP may be specific or nonspecific. LBP can be acute (sudden onset and lasting less than six weeks), subacute (lasting 6 to 12 weeks), chronic (lasting more than 12 weeks), or persistent (lasting more than 12 weeks) (reappears after lull periods) [19]. It is divided into five sections: viscerogenic (abdominal diseases), vascular (abdominal aortic aneurysm), psychogenic (pain caused by a psychological factor), neurogenic (nervous system injury), and espondylogenic (e.g. disc herniation and osteoarthritis) [20]. LBP caused by musculoskeletal disorder can be congenital, degenerative, inflammatory, infectious, malignant, and mechanical postural.

### **Review of Literature**

**1. A systemic review by Rebecca Gordon and Saul Bloxham 2016** explains that an aerobic exercise was done for 52 sedentary NSCLBP participants, a 6-week mild intensity aerobic exercise regimen (walking on a treadmill at 50% heart rate reserve) was compared to a 6-week programme requiring complex trunk, upper, and lower limb strengthening exercises [61].hence it is advised that individuals with NSCLBP continue to be physically active [13,14]. Low-to-moderate intensity aerobic exercise [15,16], high intensity aerobic exercise [17,18], core stability and muscular strength exercises [19,20,21,22,23,24], and flexibility programmes [25,26,27] are only a few of the numerous types of exercise that have been investigated to treat CLBP. As a result of the intricacy of NSCLBP [17] and the paucity of data [6,28], it is unknown what

type of exercise is the most helpful for NSCLBP rehabilitation [29]. For patients with CLBP, physical activity (PA) that increases aerobic capacity and muscular strength, particularly of the lumbar extensor muscles, is crucial for helping them complete daily activities [30]. However, it has been discovered that the effectiveness of various workouts in decreasing lower back pain varies [31]. Furthermore, excessive or insufficient PA may be linked to low back pain [32], indicating the complexity of PA as a treatment for low back pain.

### Stabilization Exercises

Stabilization exercises have been used to treat patients with segmental dysfunction and chronic pain effectively [74,75,76]. Moreover, evidence shows that a decline in muscle power might result in low back discomfort even in the absence of degeneration [77]. To get the best spinal stability, it is important to develop the deep back and abdominal muscles. These muscles include the transversus abdominis, quadratus lumborum, oblique abdominals, multifidus, and erector spinae. The transversus abdominis is the patient's initial site of recovery throughout future workouts and daily activities [78]. Exercises targeting each of these specific muscles should be done in a sequential manner.

**2. Daniele Tatiane Lizier Marcelo Vaz Perez PhD (TSA) 2, Rioko Kimiko Sakata (TSA, Associate Professor) :** 2012 Exercises to combat generalized low back pain A prevalent syndrome that results in impairment and time away from work is low back pain. Although there are several causes, nonspecific back pain is the most typical kind. Exercises are frequently used to relieve back pain, although their effectiveness is debatable. The purpose of this essay is to explore activities for treating nonspecific low back pain.

There are many different strategies that make up exercise therapy. Each patient group can exercise on their own, with a therapist's supervision, or at home for LBP. They can be carried out in the water or on fitness equipment. Exercises of many kinds are used, including aerobics, flexion and extension, stretching, stabilization, balance exercises, and coordination exercises.

For muscle strengthening exercises, attention can be given to a specific muscle (multifidus, transversus abdominis) or a group of muscles, such as the torso and abdomen.

Exercises may vary in intensity, frequency, and duration

**3. Ebadi, Safooraa; | Ansari, Nouredin Nakhostina** 2013 A study of therapeutic ultrasound and exercise treatment for muscle fatigue in patients with chronic non specific low back pain. The aim of this study was to investigate the effect of continuous ultrasound (US) plus exercise on the endurance of paravertebral muscles of patients with chronic non specific low back pain (CNSLBP). Methods and Materials: In this pilot, pretest-posttest study, 22 patients with CNSLBP participated. Patients received 10 sessions of treatment, including continuous US plus exercise therapy, over a period of four consecutive weeks. Median frequency slopes of Iliocostalis and Multifidus muscles as well as holding time during Biering-Sorensen test

were measured using surface electromyography. In addition, function and pain were measured using Functional Rating Index (FRI) questionnaire and VAS. Results: Five females and 15 males with a mean age of 31.7 years completed the treatment. Descriptive data showed a decrease of 0.01 and 0.02 mean in median frequency slope of right and left Iliocostalis respectively and a mean of 0.08 decrease for both right and left Multifidus muscles. Endurance time increased 1.8 seconds mean. Both function (17%) and pain (24%) improved post treatment. Conclusion: Larger population studies in the context of high quality, randomized clinical trial are needed to validate the results.

**4. Angela Searle ,2013** Exercise interventions for the treatment of chronic low back pain: a systematic review and meta-analysis of randomised controlled trials. Objective: To determine, for adults with chronic low back pain, which exercise interventions are the most effective at reducing pain compared to other treatments.

#### Review methods:

Databases were searched for published reports of randomised trials that investigated the treatment of chronic low back pain of non-specific origin with an exercise intervention. Two authors independently reviewed and selected relevant trials. Methodological quality was evaluated using the Downs and Black tool.

#### Results:

Forty-five trials met the inclusion criteria and thirty-nine were included in the meta-analysis. Combined meta-analysis revealed significantly lower chronic low back pain with intervention groups using exercise compared to a control group or other treatment group (Standard Mean Deviation

**5. Jill A Hayden et 2021** Exercise therapy for chronic low back pain. Low back pain has been the leading cause of disability globally for at least the past three decades and results in enormous direct healthcare and lost productivity costs. Objectives: This systematic review's main goal is to compare the effectiveness of exercise therapy to placebo, standard care, and other conservative treatments in treating individuals with chronic non-specific low back pain in terms of pain and functional limitations.

Search techniques To find additional studies, we conducted citation searches of pertinent systematic reviews and searched databases such as CENTRAL (which includes the Cochrane Back and Neck trials register), MEDLINE, Embase, CINAHL, PsycINFO, PEDro, SPORTDiscus, and trials registries (ClinicalTrials.gov and World Health Organization International Clinical Trials Registry Platform).

**6. Michel kanas,2018,** home based exercise therapy for treating non specific lower back pain. OBJECTIVE

To evaluate pain, functional capacity, and quality of life of patients with non-specific chronic low back pain, after home-based exercise therapy with different kinds of supervision.

#### Method

Thirty individuals of both gender, between 18 and 65 years old, performed the proposed exercises three times a week, for eight weeks. Group A (N = 17) performed the exercises after a single

supervised session. Group B (N = 13) was supervised once a week at the rehabilitation center. Both groups received a booklet with instructions, and questionnaires to evaluate pain, functional capacity and quality of life; during the initial evaluation, after four and eight weeks.

## Results

There was an improvement in pain and functional capacity between the initial evaluation and week 4, and the initial evaluation and week 8 in both groups ( $p < 0.05$ ). In the quality of life evaluation, the criteria for pain, functional capacity, and physical aspects had significant improvement after 8 weeks ( $p < 0.05$ ). There was no difference when comparing groups A and B ( $p > 0.05$ ).

### 7. Prof Chris Maher PhD 2017 Generalized lower back pain

There are well-liked low back pain prevention strategies that center on reducing exposure to risk factors. Employing lifting equipment at work, wearing back braces, and using ergonomic office furniture are a few examples of therapies that try to lessen the excessive loading of the spine. Such tactics have only been the subject of a small number of trials; the majority of preventative treatments only have face validity.

### 8. Amir Qaseem, MD PHD 2017 An American College of Physicians clinical practice guideline on non-invasive treatments for acute, subacute, and chronic low back pain.

Exercise resulted in a slight improvement in pain alleviation and function when compared to no exercise (11, 96), according to moderate-quality evidence. When compared to standard therapy, exercise produced modest improvements in pain severity and function at the conclusion of treatment, however the effects were less pronounced at long-term follow-up (96). In more than 20 head-to-head RCTs with individuals who had persistent low back pain, the moderately-quality evidence found no discernible differences between various exercise programs.

### 9. Jean-François Chenot 2017, Non-Specific Low Back Pain, Exercise therapy combined with educative measures based on behavioral-therapeutic principles should be used in the primary treatment of chronic non-specific low back pain (??, [16, e14–e38]).

Compared to general medical care and passive treatment methods, it produces more effective pain relief and improved functional ability (16, e14–e34). Programs with a cardiopulmonary orientation don't seem to be as effective at treating low back pain as those that focus on muscle stabilization and strengthening. Reviews of RCTs have demonstrated that behavior-therapeutic exercise regimens enhance physical functional abilities and hasten the return to work process. Current evidence does not show which specific type of exercise therapy is best for pain relief and improved functional ability. The choice of exercise therapy is, therefore, based mainly on the patient's preference, everyday life circumstances, and physical fitness and the availability of a qualified therapist to carry it out.

**10. Cherie Wells 2014**, The effectiveness of Pilates exercise in people with chronic low back pain. Pilates exercise provided statistically significant improvements in pain and functional

ability compared to usual care and physical activity between 4 and 15 weeks, but not at 24 weeks. There were no consistent statistically significant differences in improvements in pain and functional ability with Pilates exercise, massage therapy, or other forms of exercise at any time period. Pilates exercise offers greater improvements in pain and functional ability compared to usual care and physical activity in the short term. Pilates exercise offers equivalent improvements to massage therapy and other forms of exercise.

**11. Steven J Kamper, senior research fellow, 2014** Cochrane systematic review and meta-analysis of multidisciplinary biopsychosocial rehabilitation for chronic low back pain When it came to reducing pain and disability in sufferers of chronic low back pain, multidisciplinary biopsychosocial rehabilitation interventions outperformed standard care (moderate quality evidence) and physical treatments (poor quality evidence). Multidisciplinary rehabilitation appears to be more successful than physical therapy for work outcomes, but not more effective than standard medical care.

**12. L Susan Wieland AND Nicole Skoetz Karen 2022**, Yoga for persistent, generalized low back pain, Yoga, when compared to no exercise, appears to produce modest and clinically insignificant improvements in back-related function and discomfort, according to evidence of medium to moderate certainty. At three months, there may not be much of a difference between yoga and other back-related exercises for back-related function. Since all studies were unblinded and at high risk of performance and detection bias, it is unlikely that blinded comparisons would find a clinically important benefit.

**13. Vahid Mohammadi 2017**, The A prospective observational study examined how patients with non-specific low back pain and movement control impairment responded to motor control training. In this study, patients with nonspecific low back pain (NSLBP) and movement control impairment (MCI) were examined to see how motor control training affected their pain, disability, and motor control indices. Additionally, the relationship between changes in disability and the motor control indices was examined.

## Methods

Thirty people with NSLBP and MCI based on a clinical examination were following either motor control training or normal activity over 8 weeks.

## Result

Indicators of pain, impairment, and motor function in the experimental group showed significant alterations between pre- and post-training. Disability index significantly correlated with both center of pressure (anterior-posterior) and vertical ground response force values ( $r = 0.43$  and  $0.44$ , respectively).

## Conclusion

According to the study's findings, motor control indices can effectively evaluate change during motor control training aimed at retraining neuromuscular control and lowering pain and impairment.

**14. Fuming Zheng, Yiyi Zheng, Shufeng Liu, Jiajia Yang, Weihui Xiao, 2022**, The Effect of M-Health-Based Core

Stability Exercise Combined with Self-Compassion Training for Patients with Nonspecific Chronic Low Back Pain: A Randomized Controlled Pilot Study. *Methods*

This investigation is a pilot randomized controlled experiment with patient blinding. NCLBP patients were randomly assigned to one of two groups: an intervention group or a control group. The intervention group additionally received SCT prior to CSE, while all participants received m-health-based CSE. For a total of four weeks, the intervention was held once a week on a Saturday or Sunday. At 4 and 16 weeks after the study's start, patients completed electronic questionnaires to rate their own progress. Back pain disability (based on the Roland-Morris Disability Questionnaire, RMDQ) and Pain intensity (Numeric Rating Scale, NRS; current pain, worst pain, average pain) were the main outcome measures for these questionnaires. The secondary end metrics were pain catastrophizing (PCS, Pain Catastrophizing Scale), depression symptoms (PHQ-9, Patient Health Questionnaire-9), and anxiety (GAD-7, 7-item Generalized Anxiety Disorder scale).

**15. Rubén Fernández-Rodríguez, MSc1, Celia Álvarez-Bueno, PhD, 2022.** Best Exercise Options for Reducing Pain and Disability in Adults With Chronic Low Back Pain: Pilates, Strength, Core-Based, and Mind-Body. A Network Meta-analysis. The most prevalent type of chronic pain, low back pain (LBP), accounts for the highest worldwide burden of disease<sup>158</sup> and has an adverse effect on both social support and healthcare systems.<sup>92</sup> A few self-management techniques for LBP include avoiding excessive bed rest, being active, and quickly getting back to work and regular activities.<sup>155</sup> One of the finest short-term methods for lowering pain and impairment is recommended: exercise.

#### Methods

Our NMA was carried out in accordance with the Cochrane Handbook for Systematic Reviews of Interventions<sup>61</sup> and reported in accordance with PRISMANMA<sup>68</sup>, which include NMAs of healthcare interventions. In the PROSPERO database, the procedure was recorded.

**16. Saule Sipaviciene and Irina Kliziene 2019.** Effect of different exercise programs on non-specific chronic low back pain and disability in people who perform sedentary work,

#### Methods

Seventy volunteer women with low back pain who were employed in sedentary jobs were randomly assigned to the lumbar stabilization exercise program or the lumbar muscle strengthening exercise program. All participants began the 20-week fitness regimens. An ultrasound device was used to assess the multifidus muscle's cross-sectional area, and an isokinetic dynamometer was used to gauge its maximal torque.

#### Findings

The results showed that low back pain and functional disability were decreased by the 20-week exercise programs. Four weeks after the administration of the lumbar muscle strengthening exercise program and twelve weeks after the application of the lumbar stabilization exercise program, the multifidus muscle's cross-sectional area, functional impairment, and low back pain all improved.

**17. JONAS VERBRUGGHE1, ANOUK AGTEN1 and SJOERD STEVENS1 2019.** Exercise Intensity Matters in Chronic Nonspecific Low Back Pain Rehabilitation, *METHODS* Trial Planning

The current randomized controlled experiment is a component of a bigger effort that utilizes a prospectively registered, five-arm, randomized controlled trial to assess the effects of training intensity and training modality in the rehabilitation of CNSLBP. Phase 1, which compares two training programs with the same training content but different training intensities, is the sole phase covered in this publication. In the bigger undertaking, a total of 147 individuals with CNSLBP were screened between October 2016 and March 2019 for eligibility. Six of them were unable to begin the therapy, and 41 of them did not match the inclusion criteria. program because of incongruous work schedules or transportation issues and were not further included. 100 people were therefore included. 38 participants were subsequently randomly assigned to one of the two groups evaluated in this analysis. A comprehensive research design flowchart is displayed

**18. Daniel Niederer and ,Juliane Mueller, 2020,** Sustainability effects of motor control stabilisation exercises on pain and function in chronic nonspecific low back pain patients: A systematic review with meta-analysis and meta-regression. *Methods*

We screened relevant scientific databases like Medline, Web of Knowledge, and Cochrane. Qualification standards for choosing studies: A longitudinal core-specific/stabilizing sensorimotor control exercise intervention with at least one pain intensity and disability outcome assessment at a follow-up (sustainability) timepoint of 4 weeks after exercise intervention completion is used in all RCTs and CTs on chronic ( 12/13 weeks) nonspecific low back pain. The studies must be written in English or German.

#### Findings and recommendations

Ten studies—2 CTs and 8 RCTs—on N = 1081 individuals were included in the review and analyses out of the 3,415 studies that were initially retrieved. Evidence of low to moderate quality demonstrates a long-lasting beneficial effect of motor control exercise on pain and impairment in low back pain (SMD = -.46, Z = 2.9, p.001) patients when compared to any control. The subgroups' effects are less conclusive and no clear direction of the sustainability effect at short versus mid versus long-term, of the type of the comparator, or of the dose of the training is given. Low quality studies overestimated the effect of motor control exercises.

**19. Jill A Hayden and Jenna Ellis, 2021** Some types of exercise are more effective than others in people with chronic low back pain: a network meta-analysis. Design Systematic review of randomised controlled trials with network meta-analysis.

Adults who have experienced generalized low back pain for less than 12 weeks.

#### Intervention

In order to increase the results of low back pain treatments, specific activities, postures, and/or motions were recommended

or arranged by a health professional.

### Results

217 randomised controlled studies with 20,969 individuals and 507 treatment groups were considered in this study. For outcomes related to pain and functional impairment, the majority of exercise kinds were more helpful than minimal treatment. In comparison to minimal treatment, other successful therapies, and other exercise kinds, the results of the network meta-analysis were consistent with moderate to clinically significant treatment effects for Pilates, McKenzie therapy, functional restoration (pain only), and flexibility exercises (function only). In comparison to minimal treatment, the estimated mean differences for these exercise kinds varied from 15 to 19 for pain and from 10 to 12 for functional restriction.

### Conclusion

For lowering pain intensity and functional limitations, this review revealed evidence that Pilates, McKenzie therapy, and functional restoration were more helpful than other types of exercise treatment. To increase adherence, patients with chronic low back pain should be encouraged to exercise in a way that they find enjoyable.

## 20. Zhi-Gang Zhuang and Lin Wang, 2019, Chronic Spinal Pain: Pathophysiology, Diagnosis, and Treatment

### Exercise

Appropriate exercises can relieve pain to some extent. There is no evidence that exercise therapy improves dyskinesia in short term or medium term (6 months); however, there is evidence of significant improvement in the long term (over 12 months). Exercise therapy mainly includes pilates, tai chi, and yoga [111–113].

### 14.2. Acupuncture

Acupuncture can relieve pain immediately, and its effect can be maintained for up to 12 weeks. However, its long-term efficacy is unknown [114].

### 14.3. Massage

Massage can relieve the subacute and chronic LBP in short term and improve the patients' function. Massage combined with exercise can achieve better therapeutic effect.

Spinal manipulation therapy alleviates pain in a short time and improved the functional status of patients (1 month), but the long-term effect was poor [115].

## Methodology

### Aim of Study

This study is purposely aimed to review the effect of exercise therapy for office workers with chronic Non-specific low back pain.

### Objective of The Study

The objective of this study is to review effect of exercise therapy for office workers with chronic Non-specific low back pain.

### Statement of Problem

A review of literature (I.e effect of exercise therapy for office workers with chronic Non-specific low back pain) was conducted in order to provide a review of the current state effect of exercise therapy for office workers with chronic Non-

specific low back pain.

### Study Location

Department of Physiotherapy Galgotias university, plot no 2 sector 17A Yamuna express way, Gautam Buddh Nagar, Uttar Pradesh India.

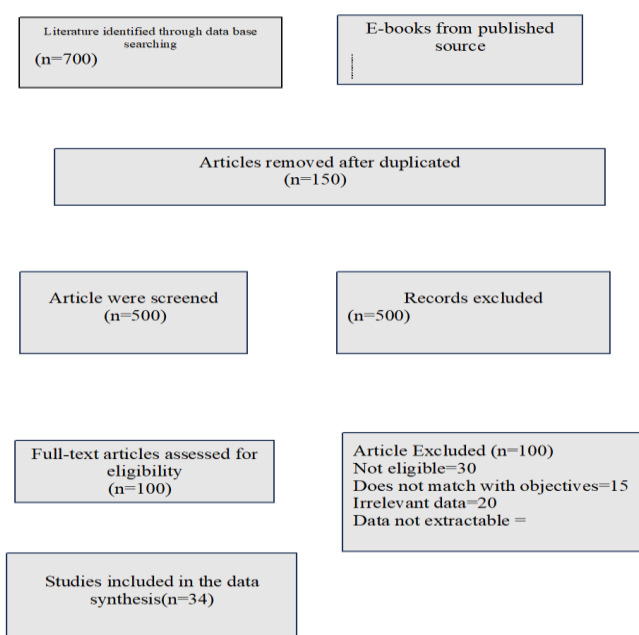
### Significance of Study

To check the effect of exercise therapy for office workers with chronic Non-specific low back pain. This will help to reduce complications that occurs in office workers with chronic Non-specific low back pain.

### Hypothesis

Isometric exercise for office workers with chronic Non-specific low back pain increase the levels of comfort and satisfaction and decrease the level of fatigue. Exercising patient 'Back did not increase any complications in the affected area.

### PRISMA FLOW DIAGRAM



## Discussion

Based on numerous studies available ,it has been proved that excercises reduce low back pain, the findings of this study show that people with NSCLBP have a variety of preferences in terms of enviroment and style ,which are important to concider when prescribing exercise.

In several studies .it had been discussed that exercise such as isometric ,flexibility and stabilization exercise play big role in reducing CLBP

Its therefore also discussed in the study of **Michel kanas,2018**, home based excercise therapy for treating non specific lower back pain,

### Method

Thirty individuals of both gender, between 18 and 65 years old, performed the proposed excercises three times a week, for eight weeks. Group A (N = 17) performed the excercises after a single supervised session. Group B (N = 13) was supervised once a week at the rehabilitation center. Both groups received a booklet with instructions,and questionnaires to evaluate pain, functional capacity and quality of life; during the initial evaluation, after four and eight weeks.

## Results

There was an improvement in pain and functional capacity between the initial evaluation and week 4, and the initial evaluation and week 8 in both groups ( $p < 0.05$ ). In the quality of life evaluation, the criteria for pain, functional capacity, and physical aspects had significant improvement after 8 weeks ( $p < 0.05$ ). There was no difference when comparing groups A and B ( $p > 0.05$ ).

It was further discussed in the study of **Suttinee Phattharasupharerk and Nithima Purepong** Named Effects of Qigong practice in office workers with chronic non-specific low back pain. This study demonstrates that practicing Qigong (Guan Yin Zi Zai Gong level 1) for six weeks reduces stress, lowers heart rate, increases respiratory rate, and improves back function and range of motion. Additionally, the Qigong group considerably outperformed the waiting list group in terms of overall outcome satisfaction. These findings imply that practicing qigong is a decision.

In addition **Daniele Tatiane Lizier Marcelo Vaz Perez PhD (TSA) 2, Rioko Kimiko Sakata (TSA, Associate Professor)** discussed that Exercise for LBP can be done individually for each group of patients, under the supervision of a therapist, or at home. They can be performed using exercise machines or in the pool. Various types of exercises, such as , flexion or extension, stretching, stabilization, balance and coordination, are used. For muscle strengthening exercises, attention can be given to a specific muscle (multifidus, transversus abdominis) or a group of muscles, such as the torso and abdomen.

Exercises may vary in intensity, frequency, and duration

In a different study, it was feasible to detect significant differences between the treatment and control groups in a quality of life questionnaire following a six-week program of segmental stabilization exercises for those with chronic LBP. In the group of individuals who were investigated, there was a significant decrease in both pain and disability, and 89% of patients thought their level of pain intensity and functional disability was acceptable<sup>29</sup>.

In addition to lowering pain and impairment in individuals with chronic LBP, specific workouts that promote contraction independent of the deep trunk muscles with transversus abdominis and multifidus contraction are also helpful<sup>30</sup>.

## Conclusion

According to various research i found moderate-certainty evidence that exercise therapy is probably effective for treatment of chronic low back pain compared to no treatment, Exercise standardization, along with duration, frequency, and time of evaluation, are required to lower the risk of erroneous interpretation when deciding the best modality for a specific population suffering from nonspecific LBP. The wrong way to exercise can be detrimental to their health. Exercises with weights done while sitting and front and side load elevations with the arms extended are the most prominent examples. Exercises can create shoulder and back pain if they are done incorrectly or with too much weight. Exercise that is safe for the joints and tendons should be performed to keep the body in


shape without endangering

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