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Effects of kinesio taping on adhesive capsulitis

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To benign with the painful, progressive loss of active and passive shoulder motion brought on by fibrosis and rigidity of the joint capsule is the hallmark of adhesive capsulitis. Adhesive capsulitis, sometimes referred to as "frozen shoulder," is mostly an idiopathic illness that is more common in sedentary individuals with diabetes mellitus and hypothyroidism among athletes due to overuse and weakness associated with injury risks.

The purpose of this literature review is to evaluate the effect of kinesiotaping on adhesive capsulitis. This thesis was based on modified literature reviews. Manual searches were conducted as well as searches in PubMed, Google Scholar, and CINAHL databases. Based on this literature review inclusion criteria, six randomized controlled trials (RCTs) were selected.

Physiotherapy management of frozen conditions using kinesio taping was found to be effective in evidence-based outcomes. The use of kinesio taping with techniques of mobilization, therapeutic exercise and other physiotherapy interventions over a period of 4-6 weeks promised results in range of motion, pain reduction and improve the ability to cope with disability.

In general, the use of taping techniques complement conventional physical therapy in the management of shoulder-related ailments in a safe and effective manner.Despite this, more research is being conducted to identify the best taping technique for every illness and to assess the long-term outcomes of taping in treating these conditions. According to the findings of this study, kinesio taping has shown positive effects when applied to frozen shoulder disorders.

Key Words	Kinesio taping, adhesive capsulitis, frozen shoulder,

Contents

1. Introduction

Frozen shoulder, often referred to as adhesive shoulder capsulitis, is a condition where the body produces imoderate adhesions or scar tissue around the glenohumeral joint. resulting in rigidity, discomfort, and malfunction. Adhesive capsulitis that is primary or idiopathic can appear without any particular injury or trigger. During periarticular fracture/ dislocation of the shoulders glenohumeral joint or other significant trauma of the articulation of the joint, secondary adhesive capsulitis is prevalent (Hai. Le, Stella J. Lee, Ara Nazarian, & Edward K. Rodriguez, 2016.)

In the general population, adhesive capsulitis occurs between 3% and 5% of the time, but in diabetic patients, it can occur up to 20% of the time. Despite the fact that up to 40% to 50% of patients have proven bilateral engagement, spontaneous adhesive capsulitis more often impacts the nondominant extremity. (Manske & Prohaska, 2008.)

Three separate stages can be distinguished in the occurrence of adhesive capsulitis. The first phase mentioned is referred to as the freezing period. The patient seeks healthcare as the pain and restrictions on active and passive mobility grow along with the symptoms. Acute glenohumeral joint synovitis characterizes this stage, which usually lasts 3 to 9 months. The second phase, also called the frozen or transitional stage, will be reached by the majority of patients. At this point, shoulder pain doesn't always get worse. Use of the upper limb can become limited due to pain near the limit of mobility, leading to muscle underuse (Dilisio et al., 2017.)

Medical assessment, medical record, and physical exam are used to make the clinical identification of adhesive shoulder capsulitis, which is typically an exclusion diagnosis. Prior to diagnosing of adhesive capsulitis, other reasons for a painful stiff shoulder, such as septic arthritis, incorrect setup of orthopedic devices, fracture mal-union, pathology in the rotator cuff, glenohumeral arthrosis, or cervical radiculopathy, must be checked out (Le, Lee, Nazarian, & Rodriguez, 2016.)

Physiotherapy care and management of adhesive capsulitis aims to make the shoulder free of pain and functioning once more. rehabilitative treatment Patients who have sticky shoulder capsulitis in its early stages should start with physical therapy. Since there is limited general research for the efficacy of physical therapy alone in the

treatment of frozen shoulder, physical therapy is often utilized alongside with alternative therapy techniques (Green et al., 2003.)

Kinesio taping has grown more and more common since it makes performing daily tasks more comfortable. Two things are necessary for kinesio taping to be successful: first, a precise evaluation on a patient's prognosis; and second, the proper application of the kinesio taping procedure. The adoption of any kind of therapy alone is constrained in the case of adhesive capsulitis of the affected shoulder joint. Because of this, this illness is always treated using a variety of techniques (Deshmukh et al., 2021).

Thus, presently we aim to discover the effect of Kinesio taping on adhesive capsulitis of the shoulder joint. This literature review was done to provide awareness of how kinesio taping treatment method affects adhesive capsulitis condition as a physical therapy approach.

2. Background

Kinesio taping has become one of the most used non-surgical treatment methods for many musculoskeletal disorders. Kinesio taping (KT) technique, progressed by Dr. Kenzo Kase in Japan > 25 years ago is still used as a substitute to athletic taping to support; the fascia, muscles, and joints. However, far from athletic taping, kinesio taping allows for free Range of Motion (ROM) in shoulder joint and is also scientifically proposed to lessen the time for recovery from injury by reducing pain and swelling/ inflammation(Mostafavifar, Wertz & Borchers, 2012)

2.1 Adhesive capsulitis of the shoulder joint

Adhesive capsulitis, often referred as "frozen shoulder," is mostly an idiopathic illness that is common in sedentary persons with diagnosed diabetes mellitus and hypothyroidism among sportsmen due to overuse and weakness associated with injury risks. Due to fibrosis and stiffness of the joint capsule, adherent capsulitis is characterized by a painful, progressive loss of active and passive shoulder mobility. Although other shoulder pathologies, such as impingement syndrome, mild to moderate grades of tendinitis, rotator cuff pathologies, Acromioclavicular joint problems, etc., can produce a similar clinical image, frozen shoulder must be carefully evaluated through special tests, imaging, and functional screening, and must be considered the stage of severity, to imply treatment in physiotherapy management. (Neviaser, 2011; Kingston et al., 2018.) Adhesive capsulitis is an inflammatory condition that causes fibrosis of the glenohumeral joint capsule, accompanied by gradually progressive stiffness and significant restriction of shoulder joint mobility. Commonly graded and evaluated by pain levels and loss of range of motion (especially in external rotation) adhesive capsulitis is characterized into three main categories. Identification of the stage of pathology is vital to determine a healthy rehabilitation in order to gradually regain the range of shoulder joint motion, and strength of the shoulder joint and its movements that are being treated (Lamplot, Lillegraven & Brophy, 2017; Le et al., 2016.)

Frozen shoulders typically develop slowly in three stages over a course of 24 months and beyond with the initial symptom flare up. Any shoulder movement that causes discomfort might be a sign of the first, acute phase of freezing, which lasts for two to nine months before the shoulder's range of motion is severely restricted. The shoulder joint structure is still frozen after that. During this phase, the pain symptoms could

become less severe. But the shoulder stiffness increases noticeably. It takes 4 to 12 months for using it to get harder. The thawing phase is the third and last step. The shoulder's range of motion will start to become better if the inflammation goes down along with the body's healing process. Between five and twenty-four months pass during this stage, during which stiffness symptoms even worsen. When left untreated or incorrectly diagnosed, adhesive capsulitis instances that have naturally failed to heal can last for years (Kingston et al., 2018.) In situations with adhesive capsulitis, the ultimate goal of treatment should be to restore the shoulder's ability to function while remaining pain-free. Since there is no one-size-fits-all approach to treating adhesive capsulitis, treatment and its goals should be patient-specific because some patients may improve on their own as the stage and severity of their condition and healing progress, while others may need multiple approaches to treatment combined to overcome, resulting in a wide range of treatment and rehabilitation from nonsteroidal anti-inflammatory drugs with carefully planned persistent exercise. (Yamaguchi, Sethi & Bauer, 2002.)

Nonsurgical treatments for frozen shoulder include nonsteroidal anti-inflammatory drugs, short-term oral corticosteroids, intra-articular corticosteroid injections, Electro therapy modalities and manual therapy practices of physiotherapy, kinesio taping, joint and functional range improving exercises, acupuncture, and hydro dilatation. With patient-specific exercise regimens, noninvasive treatment and physiotherapy given during the first two stages of a frozen shoulder have demonstrated outcomes in pain relief and range restoration. Surgical alternatives are introduced to address symptoms in situations where the inflammation of the shoulder joints is still present and there has been little progress after 6-12 weeks of nonsurgical treatment, such as manipulation of affected shoulder joint under anesthesia and arthroscopic capsular release. Postoperative management would again involve proper physical therapy in the restoration of lost/reduced health of the affected shoulder (Smith, Hamer & Bunker, 2014; Yamaguchi, Sethi & Bauer, 2002).

2.2 Kinesio taping and its utilization as a treatment approach

Kinesio tape (KT) in the 1970’s and healthcare professionals have since made it a popular intervention across different rehabilitation, fitness, and sports settings (Drouin et al., 2013.) Modern therapeutic taping is dominated by cotton texture based, with elastic properties, breathable, adhesive fabric strips in a wide variety of colors, shapes,

weights, and textures. In the hopes of improving performance, avoiding and recovering from injuries, and reducing discomfort, they are mostly utilized by athletes. Kinesio tape comes in a variety of tape lengths (pre cut tape pieces / rolls of tape), widths, materials, and textures. Currently, a wide range of producers create different varieties of tape to satisfy varied therapeutic demands (Cheatham, Baker & Abdenour, 2021.)

Therapeutic tape tries to have its biomechanical aspects and reach beyond it too: supposedly it also has effects of physiology too. Kinesio taping is a relatively new method that has become a simple and effective treatment for musculoskeletal diseases. Kinesio tape is cut into strips in the forms of an I, Y, X, O, or fan, as well as other shapes as needed, depending on the peculiarities of the target human muscle and joint shape. While fan strips are primarily intended to augment sensory input, alleviate pain, and reduce swelling, I and Y strips are frequently used for functional correction (Parreira et al., 2014 ;Kase, K., Wallis, J. & Kase, T., 2003.) Several systematic reviews that explored the effects of kinesio taping on patients with musculoskeletal diseases reported that kinesio taping can reduce pain intensity, especially in the short term. Kinesio tape also has been shown to have a positive impact in treating shoulder pain, knee discomfort, Achilles tendon pain, and persistent lower back pain, according to earlier research (Mostafavifar, Wertz & Borchers, 2012.)

2.3 Therapeutic effects of kinesio taping

In theory, the invention of kinesiological taping (KT) is targeted to facilitate muscle contractility and support joint structures in various mechanisms. In general summary; effect of kinesio taping on supporting muscle strength and joint stability has been studied by research studies who have prosit that kinesio taping facilitates an immediate increase in muscle strength by generating a concentric pull on the fascia, skin and joint structures in the clinically decided techniques of application.

According to reports, kinesio taping may provide a number of potential benefits, such as injury prevention, proprioceptive neuromuscular facilitation, a decrease in muscle stiffness and tiredness, pain inhibition, and faster healing thanks to decreased edema and enhanced blood flow. Kinesio taping is a frequently utilized therapeutic technique of choice in many domains of physiotherapy practice, despite the lack of solid data to support these processes. Numerous systematic reviews/ meta-analyses examining benefits of kinesio taping on musculoskeletal diseases have been published. These

studies focused on a variety of pathologies referred to as musculoskeletal disorders or sports injuries (Celik et al., 2020.)

Explanations that are commonly seen in articles that explain the mechanism of kinesiological taping areas such as stimulation of mechanotransduction and homeostasis of the fascial structures. Kinesiological taping, when applied to the skin to the clinically effective degree of stretch, results in the tissue structures in the dermis and epidermis to change in the density and the concentration. In reaction, this mechanical force of density and the concentration change, converts into electrical an impulse which potentially improves cell movement (Martino et al., 2018.) Kinesiological tape also is studied and proven to stimulate mechanoreceptors, by the same explanation of pressure and stretch force that's created on the skin that enables these stimuli to interact with central nervous system and modulates pain responses The mechanism of effect changes slightly when it comes to applying kinesio taping targeting the fascia. Tension elements in tissues encourage homeostasis as a result of the presence of the tape, which continues to keep the fascia out from movement limitations through the skin as one unit, relative to the target tissue. (Hale, Yang and Rajagopalan, 2010; Lo et al., 2000.)

2.4 The role of Kinesio taping on shoulder pathologies as a part of physical therapy management

Kinesio taping is a common treatment approach used not only for adhesive capsulitis, but for other shoulder disorders as well, such as rotator cuff injury pathologies, impingement syndrome, and calcific tendinopathy. Nevertheless, most studies suggest that kinesiological taping is beneficial on shoulder pathologies when applied along with proper physiotherapy and rehabilitation care, in addition to its reported instant or short-term effects (Djordjevic et al., 2012.)

Kinesiological taping has significant effects on correcting structural values of the shoulder joint, when used in rehabilitation. Same effect could be improved in treating second or third phases of frozen shoulder to rehabilitate the shoulder joint for its optimum articulation. A study conducted to examine rounded-shoulder-taping (RST), and its effect on seated male employers with rounded shoulder posture (RSP), with relations to subjective measurements in pectoralis minor length (PML) and the total scapular distance (TSD), concludes that; the effect of taping immediately and

significantly overdeveloped length of pectoralis minor and decreased the rounded shoulder of shoulder in supine measurements values along with decreasing total scapular distance overall resulting immediate mechanical correction of rounded shoulder posture (Han, Lee & Yoon, 2014.) A few studies that revolved around shoulder pathologies studied the effect of kinesio taping on pain intensity, influence on kinesio taping in experiences of nocturnal pain in shoulder and painless shoulder range of motion (ROM) overall to decrease pain and to improve the range of motion, Activities of daily living in the shoulder region. Almost every investigation resulted in one conclusion. Taping for some instances does act as an immediate relief of pain by the support it offers to the shoulder structures, but kinesio taping alone is never a single option solution to recover any musculoskeletal ailment, but can be adjoined with other physiotherapy aspects of pain reduction and physical training. In other terms, results suggested that there is a significance in improving shoulder pathologies when kinesio taping is used in shoulder exercises and through rehabilitation.(Shakeri et al., 2013; Oliveira et al, 2020.)

3. Aim and Methods

3.1 Aim

The motive of this literature review study was to investigate the effects kinesio taping on adhesive capsulitis. Kinesiological taping has significant effects on correcting structural values of the shoulder joint, when used in rehabilitation. Same effect could be improved in treating second or third phases of frozen shoulder to rehabilitate the shoulder joint for its optimum articulation.

3.2 Search strategy

Systematic data gathering was done utilizing randomized controlled trials (RCT). This survey of the literature focused on articles that have been released after 2010. As adhesive capsulitis treatments have improved and to maintain the integrity of the research, it was necessary to use the most recent research publications. Table 1 lists the inclusion and exclusion criteria. Additionally, research publications describing negative impacts were not included in this analysis. Between December 2022 and April 2023, searches were made using the manual search, PubMed, google scholar and CINAHL databases. Publications in the English language were utilized, and all other languages were excluded in order to minimize errors and searches. The flowchart is shown in figure 1.

The following search words were used: ((“Kinesiological taping”) OR (“kinesio taping”)) AND ((“adhesive capsulitis”) OR (“frozen shoulder”)) AND ((RCT) OR (“Randomized controlled trial”)) OR ((“Randomised controlled trial”) AND ((“physical therapy”) OR (physiotherapy))

Table 1: Inclusion and Exclusion criteria used in the thesis.

	Inclusion criteria	Exclusion criteria
Publication Date	Research articles published after year 2010	Research articles published before year 2010
Publication language	Results articles published in English	Results articles not published in English
Method	Randomized controlled trials	Research articles publications done other than randomized controlled trial methods.
Contents	Kinesio Taping, Physical therapy treatments, Adhesive capsulitis, shoulder pain	Articles not related to Adhesive capsulitis condition. Articles that have used only physical therapy treatments without Kinesio taping. Adverse effects.

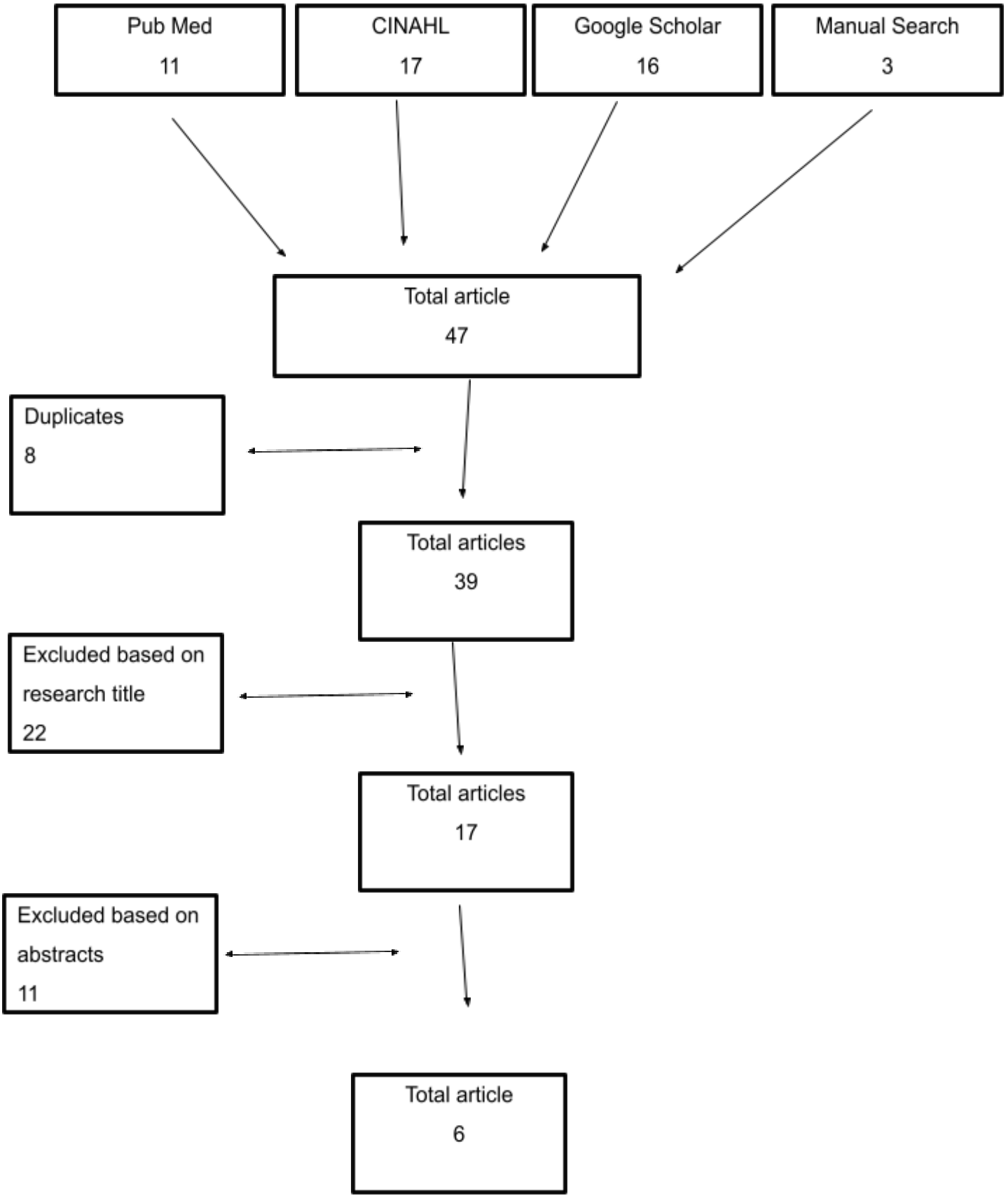
Pub Med
11
CINAHL
17
Google Scholar
16
Manual Search
3
Total article
47
Duplicates
8
Total articles
39
Excluded based on research title
22
Total articles
17
Excluded based on abstracts
11
Total article
6

Figure 1: flowchart of application process for literature review

Through database searching, selection was able to locate 47 publications for this thesis. 39 records in total were chosen for screening after 8 duplicates were removed. After reading the headlines of all 39, only 17 items remained after 22 were eliminated. Articles about kinesio taping's negative impacts were also omitted since they failed to meet the objectives of the research thesis. On the basis of abstracts, 11 articles from 17 studies were excluded. Since the abstracts discussed kinesio taping's effects on other shoulder conditions like rotator cuff injuries, impingement syndrome, and shoulder tendinopathy, those articles were primarily disqualified from this thesis. Only 6 of the 17 articles remaining to be evaluated were considered acceptable.

4. Results

6articles were finalized to be evaluated in this thesis study. The chosen includes six randomized control trials. The articles are between the years of 2012-2022, and all articles stand up to explore and prove the effectiveness of kinesio taping alone or the useful functionality of kinesio taping along with other physiotherapy practices of pain reduction and joint range improvisation in treating frozen shoulder. All randomized control trial articles chosen, project a positive conclusion on the kinesio taping and its effectiveness in comparison to the elements and methods that kinesio taping was compared against in the study trials.

Authors and the Year	Purpose of the study	Methods	Participants	Intervention	Results and Conclusion
Deshmukh, Kahile, Chaudhary, Panchbhudhe and Gawande, 2021	to ascertain how kinesio taping affects pain as well as function in shoulder adhesive capsulitis.	Randomized control trial	The institutional ethics committee diagnosed 30 people with shoulder adhesive capsulitis. both sexes between the ages of 40 and 65.	15 individuals of the first group were treated with the kinesio taping along with end range mobilization technique. 2 groups of 15 members each treated for 6 weeks (3 sessions per week)	Pain and functional range demonstrate a significant progression in the initial treatment sessions when using ANOVA to evaluate the outcome measures at 3 distinct time points and Wilcoxon Rank Sum test in comparing the mean of outcome measures across the duration. Kinesio taping has an additional impact on shoulder joint discomfort and range of motion

					due to adhesive capsulitis.
Sinaj, Kamberi, Ndreu, Sinaj and Nurka, 2015	This study investigates the effect of neuromuscular taping in combination of stretching exercises program (SEP), compared with physical therapies and SEP in patients with adhesive capsulitis.	Randomized control trial	patients of 40-60 years old were involved in the study.	40 patients were randomly allocated into two groups: First group received neuromuscular taping + stretching exercises program (Neuromuscular therapy group) Second group received physical therapies + stretching exercises program	Visual analogue scales, Goniometric measure , SPADI index was utilized in analysis. results showed statistical improvements, mutually in both the groups. The combination of taping with stretching exercises in rehabilitation of patients with frozen shoulder was shown more promising for an immediate effect if needed.

Bahrawi et al, 2020	The aim of the study was to examine the influence of mulligan taping procedure in the management of patients with frozen shoulder syndrome (FSS).	Randomized control trial	12 male subjects with frozen shoulder were randomly recruited to study.	six weeks of; Conventional physical treatment regimen was administered to Group A and included electrical therapy modalities (Ultrasound & TENS), ROM exercises (stretching), and strengthening. Group B got a conventional physical therapy regimen in addition to manual treatment using the Mulligan taping technique.	In the study group, there were significant improvements in both pain and range of motion.Along with conventional physical therapy regimens, Mulligan taping can be utilized to treat individuals with frozen shoulders. Taping helped to lessen the discomfort. Additionally, range of motion dramatically increased when mulligan taping was applied.

Kanase and Shanmugam, 2012	to research and evaluate Maitland mobilization and kinesio taping on frozen shoulder functional results.	Randomized controlled trial	32 patients with frozen shoulder conditions, who were willing to get treatment for 4 weeks and were referred to the physiotherapy department of Krishna Hospital in Karad were recruited for the study. Participants ranged in ages of 40 to 60 and included both men and women.	The subjects were screened and were put in either of two groups- group A (kinesio taping with Maitland mobilization), group B (Maitland mobilization) by convenience method.	Both groups' pain and impairment levels improved, although group A's improvement was statistically significantly greater than group B's. Patients with frozen shoulders have less discomfort and handicap while receiving Maitland mobilization with Kinesiotaping in conjunction with traditional treatment.
Mulmuley and Pathak, 2017	To find out the effect of kinesio taping adjunct with Kaltenborn mobilization and Kaltenborn mobilization alone	Randomized controlled trial	40 participants, Both genders, Age 40-60 years and Subject with subacute adhesive capsulitis.	Group A received k received kinesio taping along with Kalternborn mobilization and Group B received kinesio taping along with	At the conclusion of the second and fourth weeks, statistical analysis reveals improvements in both groups' VAS scores, all-shoulder ranges of motion, shoulder discomfort, and

	on pain, range of motion and functional disability in patients with sub-acute stages of adhesive capsulitis.			Kalternborn mobilization. Both groups received protocol for 3 days/week for 4 weeks.	disability index scores. However, when groups were contrasted, the kinesio taping and Kaltenborn mobilization combination showed more improvement than the Kaltenborn mobilization group alone.
Gulpinar, Ozer and Yesilyaprak, 2017	To research and contrast the effects of rigid and kinesio taping on overhead athletes' posture, posterior shoulder tightness (PST), and shoulder rotation movements	Randomized controlled trial	86 asymptomatic elite overhead athletes. Age between 13 to 40 years,	Participants were randomly assigned to one of four groups: rigid taping, kinesio taping, placebo taping (unreliable shoulder scapular region taping), and control group. Rigid taping group underwent taping done with therapeutic rigid tape, kinesio taping underwent therapeutic kinesio taping. (no taping).	For overhead athletes, kinesio taping may help whereas rigid taping may make glenohumeral internal rotation and posterior shoulder stiffness worse. Kinesio taping is better than stiff tape for extending the overall range of motion. Posture was unaffected by taping. In order to increase glenohumeral internal rotation, total range of motion, and posterior shoulder stiffness in overhead athletes, short-term kinesio taping may be helpful.

Three randomized control trials that examine whether kinesio taping is used in physiotherapy treatments for mobilization methods make up the set of six articles. In one of the two studies, which had 30 participants and randomized trials were carried out in two groups to investigate the impact of kinesio taping on pain and function in affected shoulders of adhesive capsulitis(Deshmukh, Kahile, Chaudhary, Panchbhudhe and Gawande, 2021). A mobilization technique was used to treat 15 members of the first group.Grade IV mobilization repeated ten to fifteen times. MWM (movement with mobilization): three sets of ten repetitions with a minute of rest in between each set. 32 frozen shoulder patients were enrolled in the second randomized control experiment by Kanase and Shanmugam (2012) for a 4-week trial period to examine the efficacy of Maitland mobilization and kinesio taping on functional results. Two groups were tested: group A, which used kinesio taping together with Maitland mobilization, and group B, which used Maitland mobilization alone. Both groups' pain and impairment levels improved, although group A's improvement was statistically significantly greater than group B's. Patients with frozen shoulders experience less discomfort and disability while receiving Maitland mobilization with Kinesiotaping in addition to standard therapy. The last randomized control trial evaluating kinesio taping and mobilization's efficacy compares the effects played by kinesio taping used in conjunction with Kaltenborn mobilization (group A) and Kaltenborn mobilization used alone (group B) on pain, range of motion, and functional disability in patients with subacute adhesive capsulitis. The trials involved 40 volunteers, aged 40 to 60, who had subacute adhesive capsulitis. The treatment period lasted three weeks, with four sessions per week. By the end of the second and fourth weeks, statistical analysis reveals improvements in both groups' VAS scores, all-shoulder ranges of motion, shoulder discomfort, and disability index scores.

Sinaj, Kamberi, Ndreu, Sinaj, and Nurka's (2015) study on the efficiency of using kinesio taping in combination with neuromuscular and stretching exercises program (SEP) revealed that the combined use of taping and stretching exercises program improves results in the rehabilitation of patients with frozen shoulder, particularly when a rapid impact is required. 40 patients between the ages of 40 and 60 were taken into the trial, and they were shared among two groups at random: the NMT group (which received neuromuscular taping plus SEP) and the PT group (which received physical therapy plus SEP). (PHT group).The names of the patients were written on the sealed envelopes used for the blind randomization. Visual analogue scales for discomfort, goniometric measurements for passive and active range of motion, the SPADI score for

shoulder function, and patient satisfaction were used to assess the findings. Both the experimental and control groups exhibited a statistically significant advancement, according to the analysis. Additionally, after the first week, the experimental group showed a statistically significant VAS mean gain over the control group.

Two further experiments that focused on the variation in taping methodology and material were chosen. These six randomly chosen controls were chosen in order to shed further light on how successful kinesio taping is in comparison to other widely used taping techniques. In order to compare the effectiveness of rigid and kinesio taping on posture, posterior shoulder tightness (PST), and shoulder rotation motions in overhead athletes, 86 asymptomatic elite overhead athletes between the ages of 13 and 40 were randomly selected for the study and divided into four trial groups. The studies involved four groups: the rigid taping group (RTG), the kinesio taping group (KTG), the group receiving a placebo, and the untreated control group. The rigid taping group went through rigid taping, the kinesio taping group went through therapeutic kinesio taping, and the placebo group was cared for with unreliable shoulder scapular region taping. (no taping). Results of posture did not significantly alter. In overhead athletes, rigid taping has the potential to exacerbate posterior shoulder stiffness and glenohumeral internal rotation. Kinesio taping is demonstrably better than stiff taping for boosting total range of motion. No change in posture, either for the better or worse, was caused by taping. In order to progress glenohumeral internal rotation (GIR), total range of motion (TROM), and posterior shoulder stiffness in overhead athletes, short-term kinesio taping may be helpful. (PST).

When researching the mulligan taping technique, researchers discovered a randomized control experiment that sought to explore and determine the impact of the taping technique on treatmenting frozen shoulder patients. (Bahrawi et al, 2020.) A traditional physiotherapy program with electrotherapy modalities (Ultrasound & TENS), ROM exercises (stretching), and strengthening was administered to group A, while group B received a standard physical therapy program along with the mulligan taping technique for a period of 6 weeks. The results were statistically significant, and the research group showed reductions in both pain and range of motion. Mulligan taping was shown effective in treating patients with frozen shoulders together with traditional physiotherapy programs. Taping contributed to reducing pain. Additionally, ROM improved significantly following placement of mulligan taping.

5. Discussion

This literature review was conducted to serve the purpose of evaluating the effect of kinesio taping on adhesive capsulitis.

The 6 articles were suitable to provide evidence for the effects of various taping techniques in managing shoulder-related conditions such as frozen shoulder syndrome, adhesive capsulitis, and improving shoulder motion and reducing tightness. The study on overhead athletes found that kinesio taping might be useful in improving shoulder motion and reducing posterior shoulder tightness. However, rigid taping was found to worsen internal rotation and tightness. These findings suggest that kinesio taping may be a more appropriate taping technique for overhead athletes. The study on frozen shoulder syndrome found that the Mulligan taping technique was effective in reducing pain and improving range of motion. The technique was also found to be safe and cost-effective with no reported side effects. These results imply that the Mulligan taping technique may be an advantageous addition to conventional physical therapy for the treatment of frozen shoulder. The research on adhesive capsulitis suggests that treating patients with frozen shoulders with a mix of neuromuscular taping and stretching exercises is more effective, particularly when a speedy result is required. These results imply that this combination of therapies may be a good choice for adhesive capsulitis patients who seek prompt relief from discomfort and limitation. Finally, the study on the adjunct effect of kinesio taping in the treatment of adhesive capsulitis found that the use of KT along with mobilization techniques was effective in improving pain, range of motion, and function in patients with adhesive capsulitis of the shoulder joint. These findings suggest that KT may be a useful addition to traditional physical therapy for managing adhesive capsulitis (Deshmukh, Kahile, Chaudhary, Panchbhudhe and Gawande, 2021; Sinaj, Kamberi, Ndreu, Sinaj and Nurka, 2015; Bahrawi et al, 2020; Kanase and Shanmugam, 2012; Mulmuley and Pathak, 2017; Gulpinar, Ozer and Yesilyaprak, 2017).

Intervention studies were conducted primarily to gauge how well treatments worked. Because they offer the most useful means of identifying advantages of one treatment over another, follow-up periods were longer than treatment times. This gives a clear notion of how to choose the most effective treatment options. Overall, these studies

suggest that taping techniques can be an effective and safe adjunct to traditional physical therapy in managing shoulder-related conditions.

The majority of the chosen articles satisfied the goal of the bachelor's thesis, which was this thesis's strongest point. Every single one of the study publications was an RCT. The chosen papers also demonstrate how various kinesio taping methods and conjunction with other forms of physical therapy can be used to treat adhesive capsulitis. A significant flaw was that there weren't enough studies and it was difficult to discover high-quality RCT publications that related to the research issue. Only six items were chosen as a result. According to this study, kinesio taping can help persons with frozen shoulder or adhesive capsulitis minimize and sustain their symptoms.

Overall, these studies suggest that taping techniques can be an effective and safe adjunct to traditional physical therapy in managing shoulder-related conditions. However, it is interesting to see more studies being developed to aim at the optimal taping technique for each condition and to aim at the long period of effects of taping in managing these conditions.

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