2023

Effectiveness of the Use of Kinesiotape for Adults with Elbow Tendinosis in Reducing Pain to Promote Engagement in Occupations

Natasha Minar

Kinley Nordin

Kaitlyn Peterson

Effectiveness of the Use of Kinesiotape for Adults with Elbow Tendinosis in Reducing Pain to Promote Engagement in Occupations

Natasha Minar, OTS, Kinley Nordin, OTS, & Kaitlyn Peterson, OTS

Department of Occupational Therapy, University of North Dakota, Grand Forks, North Dakota, United States

Please direct correspondence to Natasha Minar, Kinley Nordin, or Kaitlyn Peterson at natasha.minar@und.edu, kinley.nordin@und.edu, or kaitlyn.m.peterson@und.edu

***This resource was written by doctoral-level students in fulfillment of the requirements of the Occupational Therapy course "OT 403 - Clinical Research Methods in Occupational Therapy" at the University of North Dakota School of Medicine and Health Sciences, under the advisement of Professor/Course Director Anne Haskins, Ph.D., OTR/L, Assistant Professor Breann Lamborn, EdD, MPA, Professor Emeritus Gail Bass Ph.D., OTR/L, and Research and Education Librarian Devon Olson Lambert, MLIS.

Focused Question

What is the effectiveness of the use of kinesiotape for adults with elbow tendinosis in reducing pain to promote engagement in meaningful occupations in order to increase quality of life and well-being?

Case Scenario

This critically appraised topic paper focuses on the use of kinesiotape for adults experiencing chronic pain associated with elbow tendinosis that greatly influences their ability to engage fully in their meaningful occupations. Adults with elbow tendinosis may experience decreased functional mobility due to pain from their diagnosis (Eraslan et al., 2017; Karlıbel & Aksoy, 2022; Shakeri et al., 2018), thus decreasing their overall quality of life and well-being. In this paper, pain associated with elbow tendinosis, the effectiveness of kinesiotape compared to alternative interventions, and the role of occupational therapy in promoting engagement in meaningful occupations will be discussed. Kinesiotape has been defined as an elastic cotton strip with acrylic adhesive that is used to ease pain (Johnson, 2019).

The most appropriate theoretical base for this critically appraised topic paper is the Person-Environment-Occupation (PEO) model of occupational therapy. This model encompasses the transactional relationship between the *person, environment,* and *occupation*; meaning that there is a dynamic relationship that occurs between these three areas (Baptiste, 2017). When these three areas are in alignment, *occupational performance* is achieved (Baptiste, 2017). In this critically appraised topic paper, the *persons* are individuals experiencing elbow tendinosis and the unique experiences they encounter from this, the *environment* is what surrounds the person and has an impact on them, and *occupation* are any activities they perform on a daily basis (Baptiste, 2017). Interventions such as kinesiotape, that are applied to the person in an effort to make a change in their health status and increase their ability to complete occupations can be used to increase *occupational performance*.

It should be noted that during the literature search of articles for this critically appraised topic paper, authors and researchers of articles used both “patient” and “client” to refer to individuals receiving services, as well as participants in the research studies. To stay consistent with clinical practice, the authors of this critically appraised topic paper used the term “client” to refer to participants in research studies and individuals receiving services.

Elbow Tendinosis and Pain

Elbow tendinosis, also known as lateral or medial epicondylitis or tennis elbow, is an inflammatory disease consisting of microvascular damage and cellular degeneration (Pitzer et al., 2014). It is the result of chronic damage to the tendon “with disorganized fibers and a hard, thickened, scarred and rubbery appearance” (Cleveland Clinic, 2016, para. 5). Onset of pain associated with elbow tendinosis can be gradual or sudden, is caused by degeneration of the tendon, and occurs because of overuse of the upper extremity (Cleveland Clinic, 2016, paras. 3-5).

Risk factors of elbow tendinosis include overuse, repetitive motions, obesity and diabetes, steroid use, smoking, and a history of other tendinopathies (Karlıbel & Aksoy, 2022; Pitzer et al., 2014). Some demographics like being white, female, and ages 45-54 years old also increase an individual's risk for developing elbow tendinosis (Karlıbel & Aksoy,

2022; Pitzer et al., 2014). The prevalence of lateral epicondylitis depends on the population, but it is seven times more likely to occur than medial epicondylitis (Pitzer et al., 2014). Elbow tendinosis is often diagnosed in those who play some type of racquet sport, in which they use their arms in repetitive motions for long periods of time (Cho et al., 2018; Pitzer et al., 2014). The rates of elbow tendinosis are equal between males and females, and tendinosis affects a person's dominant arm 75% of the time (Pitzer et al., 2014).

An important differentiation to make is between tendinitis and tendinosis. While they are both related to the tendon and commonly used interchangeably, they are not the same thing. Tendinosis is degeneration of the tendon, inflammation, and is a chronic condition while tendinitis is the pain that accompanies that inflammation and can be treated more quickly (Smith, 2018).

Pain, especially long-term pain, can cause many effects on a person when it comes to psychological, emotional, physical, and economic factors (Fine, 2011). Some consequences include altered mood, reduced cognitive function and brain use, decreased cardiovascular functioning, lower quality of life, and impaired functionality (Cho et al., 2018; Fine, 2011; Guler & Yildirim, 2020). Pain can also make it difficult to sleep or get good sleep as well as maintain a level of sexual function that is normal for the person (Fine, 2011). The treatment associated with pain typically is expensive, sometimes requires hospital stays and surgeries, and leads to lower productivity at work (Cho et al., 2018; Fine, 2011; Wegener et al., 2015). With lower levels of functioning and decreased quality of life also comes less leisure participation and decreased independence, which can be detrimental for an individual's mental health (Fine, 2011; Guler & Yildirim, 2020). Because the mind and body are connected, both physical and psychological effects of pain can influence overall well-being and recovery.

For people with elbow tendinosis, pain is often addressed during initial evaluation. Researchers who look at the effects of certain interventions on elbow tendinosis often employ pain scales in order to gauge the level of pain a person is feeling prior to treatment and after treatment. The visual analog scale (VAS) is used to assess pain by having a person rate their pain from 0 to 10, 0 being no pain and 10 being unbearable pain (Erpala et al., 2021). Researchers and practitioners may also design their own pain scales based on a numerical rating scale (NRS) (Cho et al., 2018), much like the VAS but with slightly different parameters. Management of pain associated with elbow tendinosis is typically non-surgical (Cho et al., 2018). However, many treatment interventions lack research evidence to support their use in treating elbow tendinosis to decrease pain.

Culture is an important aspect of the human experience, as well as the healthcare experience. In the synthesis of this critically appraised topic paper, there was a noted lack of culture represented in the chosen articles for review. According to Brady et al. (2017), chronic pain and the experience of that pain are guided by the individual's social and cultural constructs. Because of this fact, it is important to factor an individual's culture into their treatment for their chronic pain. There is a growing population of communities from culturally and linguistically diverse (CALD) backgrounds in many countries across the world (Brady et al., 2017). Brady et al. (2017) constructed a focus group based study of 41 individuals from Assyrian, Mandaean, and Vietnamese backgrounds who had migrated to the

Sydney, Australia area. The individuals were between the ages of 36-74 years old and had been experiencing pain daily for at least 3 months. One focus group was completed in which the participants were asked a variety of questions regarding their experiences and asked to complete an individual interview (Brady et al., 2017). The researchers posited that the findings from the focus groups suggested that the most prominent themes that played the largest role in how individuals experience and cope with pain were gender and family identity (Brady et al., 2017). In different cultures, these themes represented different things. In some cultures, their gender and family roles strengthened their ability to face the pain, and in others, the individuals faced a loss in their ability to fulfill their familial role (Brady et al., 2017). The researchers concluded that healthcare workers should be familiarized with the way different cultures experience and understand pain (Brady et al., 2017).

Kinesiotape Effectiveness as Compared to Alternative Interventions

Kinesiotape is used as an intervention used with adults who have elbow tendinosis. Kinesiotape is defined as an elastic cotton strip with acrylic adhesive (Johnson, 2019). The use of kinesiotape is to aid muscle movement with the intent to relieve pain and reduce swelling and inflammation. (Wegener et al., 2015). Kinesiotape can be used to assist in muscle function, improving circulation of lymph and blood by eliminating tissue fluid or bleeding under the skin by moving the muscle (Wegener et al., 2015).

Other interventions for the treatment of elbow tendinosis include counterforce braces (Phadke & Desai, 2017), forearm-band therapy (Karlıbel & Aksoy, 2022), peloid therapy (Gül et al., 2021), steroid injections (Kocak et al., 2019), dry needling (Atlas et al., 2023), ultrasound therapy, and extracorporeal shock wave therapy (Ozmen et al., 2021).

Ultrasound therapy produces deep heat in the tissue to enhance blood flow, stimulate inflammatory mediators, and reduce pain and muscle spasms (Ozmen et al., 2021). Counterforce braces are used to decrease inflammation and facilitate healing (Phadke & Desai, 2017). Forearm bandages are intended to target the cause of a lesion by reducing overload on the wrist extensors' origin (Karlıbel & Aksoy, 2022). Peloid therapy is often used in the treatment of elbow tendinosis and is the external application of peloids for therapeutic purposes (Gomes et al., 2012). "Peloids are medicinal muds that are formed as a result of geobiological events in the natural environment and contain organic and inorganic substances that can be used for medical purposes" (Gül et al., 2021, p. 662). Steroid injections are anti-inflammatory medicines that are used to treat a variety of conditions (NHS, 2020, para. 1). Dry needling is "a treatment method that acts through repeating fenestrations on the affected tendon, which in turn increases the local blood supply and fibroblastic proliferation while disrupting chronic degeneration" (Atlas et al., 2023, p. 1554). This treatment can increase the production of healthy collagen and tendon healing (Atlas et al., 2023). Extracorporeal shock wave therapy involves the transmission of high-intensity acoustic pressure waves generated by electrohydraulic, electromagnetic, or piezoelectric devices through gel to the targeted area in the body (Ozmen et al., 2021). This is done to, ultimately, increase collagen synthesis and reduce pain (Ozmen et al., 2021).

Intervention strategies of ultrasound therapy, kinesiotape, forearm-band therapy, and extracorporeal shock wave therapy have been shown to reduce pain significantly during daily activities (Karlıbel & Aksoy, 2022; Ozmen et al., 2021). Unlike ultrasound therapy and

extracorporeal shock wave therapy intervention strategies, kinesiotape interventions have been shown to significantly improve grip strength following the completion of treatment (Cho et al., 2018; Giray et al., 2019; Ozmen et al., 2021). In the comparison of sham taping (placebo) and kinesiotaping (intervention), kinesiotape showed a significant decrease in pain immediately (Kocyigit et al., 2015). Counterforce bracing and kinesiotaping were both shown to be equally effective in reducing pain, increasing grip strength, and decreasing disability in adults with elbow tendinosis (Phadke & Desai, 2017).

Occupational Therapy and Meaningful Occupations

Occupational therapy is the therapeutic use of activities or tasks, also called occupations, that a person uses in their everyday life to encourage or enhance participation to increase quality of life and well-being (American Occupational Therapy Association [AOTA], 2020). According to AOTA (2020), occupations are the meaningful and personalized engagement in the aforementioned activities or tasks of everyday life. The field of occupational therapy recognizes nine different areas of occupation that individuals can engage in and will depend on the client's specific abilities and interests. These nine areas are activities of daily living (ADLs), instrumental activities of daily living (IADLs), health management, rest and sleep, work, education, play, leisure, and social participation (AOTA, 2020).

Chronic pain caused by elbow tendinosis can affect the way an individual will engage in their occupations in small or systemic ways. Occupational therapists are experts in evaluating and identifying the ways in which individuals' experiences with their occupations are impacted by their chronic pain. They are also experts in applying treatment interventions, such as kinesiotaping, in order to reduce or alleviate pain to allow individuals to engage in their meaningful occupations. Currently, there is a lack of literature regarding occupational therapy and the effects of kinesiotape on how a person engages in their meaningful occupations to increase their quality of life and well-being.

Purpose Statement

There is currently an overall lack of literature and evidence examining the effectiveness of kinesiotape in reducing pain in adults with elbow tendinosis and how occupational therapists can improve the overall quality of life and well-being by promoting engagement in meaningful occupations while prescribing this intervention. The purpose of this critically appraised topic paper is to identify possible solutions and gaps in the field of occupational therapy related to adults experiencing a decreased quality of life and well-being due to pain caused by elbow tendinosis resulting in a lack of occupational engagement in meaningful occupations and whether kinesiotape could be an effective treatment intervention.

Methodology

During the literature search, a number of allied health databases were utilized, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Clinical Key. The database search occurred from February 22nd-28th, 2023. Search terms used to locate articles were "occupational therapy", "kinesiology tape", "kinesiotape", "sham tape", "KT", "epicondylitis", "lateral epicondylitis", "medial epicondylitis", "elbow tendonosis", and "tennis elbow". Initially articles were to be excluded

if older than 2018, however, a lack of publications in recent years gave reason to to extend the year of publication. The inclusion criteria for this critically appraised topic paper were that the articles needed to be peer reviewed (if related to kinesiotape), the full text needed to be available via the database, and an English translated version of the article needed to be available if initially published in a different language.

Types of Articles Reviewed

A total of 28 published resources were reviewed and selected for inclusion in this critically appraised topic paper. Of those 28 represented, 13 were Level I resources (Atlas et al., 2022; Cho et al., 2018; Eraslan et al., 2017; Erpala et al., 2021; Giray et al., 2019; Gül et al., 2021; Guler & Yildirum 2020; Karlıbel & Aksoy 2022; Kocak et al., 2019; Kocyigit et al., 2015; Phadke & Desai, 2017; Ozmen et al., 2022; Shakeri et al., 2018), one was a Level III design (Au et al., 2017), four were Level NA sources (Brady et al., 2017; Cheatham et al., 2021; Taylor et al., 2015; Wegener et al., 2015), and two articles were literature reviews (Fine, 2011; Gomes et al., 2013). Seven works were websites or informational articles used for background information or clarification of information (AOTA, 2020; Cleveland Clinic, 2016; Johnson, 2019; Mayo, 2021; NHS, 2020; Pitzer et al., 2014; Smith, 2018) and one occupational therapy textbook was used for background information (Baptiste, 2017).

Theoretical Base

The Person-Environment-Occupation (PEO) model was used as a theoretical base for the synthesis of this critically appraised topic paper. The PEO model is used to analyze the transactions between the person, environment, occupation, and occupational performance (Baptiste, 2017). The person is uniquely intertwined with their environment through engaging in their occupations. Within the person aspect of the PEO model, there are five different areas: *physical*, *cognitive*, *sensory*, *affective*, and *spiritual* (Baptiste, 2017). Each of these areas contribute to allow a person to complete activities that they want and need to do. All areas present will be affected by the pain an individual is experiencing. The social and cultural constructs an individual identifies with will change the way in which they experience pain and show their pain to others (Brady et al., 2017). The environment is comprised of physical, social, cultural, institutional, and virtual (Baptiste, 2017). The environment is what surrounds the person and what they interact with. Occupation has three levels which include *activity*, *task*, and *occupation* and four specific areas: *self-care*, *productivity*, *leisure*, and *rest/sleep* (Baptiste, 2017). Under this model, practitioners use person, environment, and occupation to find the best fit through looking at transactions across the life span (Baptiste, 2017). Occupational performance is obtained when the person has the best fit between the occupation, environment, and themselves (Baptiste, 2017). PEO is an appropriate model for this critically appraised topic paper given that an individual with elbow tendinosis who is experiencing a decrease in occupational performance may benefit from using kinesiotape to decrease their pain and thereby engagement in occupations to increase well-being and quality of life.

Because of the nature of the PEO framework, it is believed that the person, environment, and occupation are linked and cannot be separated from each other (Baptiste, 2017). In this critically appraised topic paper, interventions will be described in relation to

person, environment, and occupation. Each intervention is associated with one of the three areas and the areas have an effect on the application and outcome of the intervention.

Person

Pain associated with elbow tendinosis impacts an individual's ability to complete daily activities that are needed in order to function in their expected roles and responsibilities, such as driving a car, typing on a keyboard, or aspects of dressing (Wegener et al., 2015). In a retrospective case study, Wegener et al. (2015) found that, even though kinesiotape has little evidence supporting its effectiveness, their participants had a decrease in their Visual Analog Scale for pain and a minimum clinically important difference (6.5 kg) in their grip strength when using a Dynamometer after three months of kinesiotaping and eccentric exercises. In a randomized control trial, Erpala et al. (2021) concluded that between three groups (kinesiotape, corticosteroid injection, and rest and medication), corticosteroid injection was more effective at the end of the second week in reducing pain when clients were given pain scales (Nirschl, Visual Analog Scale, Quick Disability of Arm, Shoulder and Hand, and Patient Related Elbow Evaluation) and hand-grip measurements but that kinesiotape persisted longer in its effectiveness than corticosteroid injection by the end of the fourth week. Erpala et al. (2021) stated that both kinesiotape and corticosteroid injection were more effective than rest and medication. Erpala et al. (2021) could not make any conclusions about the effectiveness of treatments and participants' ability to complete daily activities due to the participant's constantly feeling the tape on their elbow.

When determining effective interventions for individuals experiencing pain, it is important to take into consideration the person's mental health or the affective aspect of the person. According to Fine (2011), the prevalence of individuals experiencing chronic pain also experiencing a mood disorder was 33% to 46%, whereas individuals not experiencing chronic pain but experiencing a mood disorder was about 10%. As the individual's pain persisted, incidence of a mood disorder increased. Fine (2011) concluded that early intervention with treatment for pain is essential to the overall health and well-being of the client. Cho et al. (2018) stated that pain and pain measurements are subjective. Everyone has a different threshold or tolerance for pain (Fine, 2011). Because of this, everyone experiences pain differently and the experience is unique to the person. However, Karlıbel and Aksoy (2022) also found in their literature search that the "natural resolution of pain and function" after the onset of elbow tendinosis is around six weeks (p. 228). This presents a possible confounding variable to consider: time.

In comparing the treatments of dry needling and kinesiotaping, dry needling was more effective than kinesiotaping in individuals who had elbow tendinosis in regard to decreasing pain, improving functionality, and improving overall client satisfaction (Atlas et al., 2022). Dry needling treatment also revealed changes in tendon thickness, heterogeneity, and elastography parameters when compared with the kinesiotaping group. Dry needling showed to be more effective than kinesiotaping in short-term results, long-term results, and controlling pain (Atlas et al., 2022).

Alternative interventions for clients with elbow tendinosis include counterforce braces (Phadke & Desai, 2017), forearm-band therapy (Karlıbel & Aksoy, 2022), peloid therapy (Gül, 2021), steroid injections (Kocak et al., 2019), dry needling (Atlas et al., 2023),

ultrasound therapy (Ozmen et al., 2021), and extracorporeal shock wave therapy (Ozmen et al., 2021). Interventions including kinesiotaping, counterforce bracing, and forearm-band therapy were equally effective in improving grip strength following completion of treatment and indicated a decrease in pain immediately (Karlıbel & Aksoy, 2022; Kocyigit et al., 2015; Ozmen et al., 2021; Phadke & Desai, 2017). Similarly, ultrasound therapy, forearm-band therapy, and extracorporeal shock wave therapy were shown to reduce pain during activities of daily living (Karlıbel & Aksoy, 2022; Ozmen et al., 2021).

Environment

Researchers conducted studies using kinesiotape on adults with elbow tendinosis in Turkey (Eraslan et al., 2017; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Ozmen et al., 2021), Australia (Taylor et al., 2015; Wegener et al., 2015), Iran (Shakeri et al., 2018), India (Phadke & Desai, 2017), and Lithuania (Erpala et al., 2021). The assessments and measures within the aforementioned studies were likely adapted to fit the country and language. Other than this, the researchers did not include descriptions about culture. Culture can influence what activities individuals participate in and what occupations could be affected. Each study reviewed was specific to participants in that area, which can make it more difficult to generalize to those in other locations and countries (Eraslan et al., 2017; Erpala et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Ozmen et al., 2021; Phadke & Desai, 2017; Shakeri et al., 2018; Taylor et al., 2015; Wegener et al., 2015).

Occupation

Erpala et al. (2021) stated that individuals in their study with the kinesiotape intervention may have actually completed less daily activities due to the feeling of the tape on their arms, therefore, not giving an accurate determination of participation in daily activities. Grip strength in individuals with elbow tendinosis is often reduced because of the pathological involvement of the common tendon of the wrist extensor muscles (Phadke & Desai, 2017). Grip strength is necessary to perform meaningful occupations like activities of daily living and can be indicative of functional independence (Simard et al., 2012).

Gül et al. (2021) completed a single-blind controlled study, in which improvements in pain, functional status, and quality of life were found in both the kinesiotaping group and the peloid therapy group. In individuals with elbow tendinosis, peloid therapy was found to be more effective than kinesiotape (Gül et al., 2021). “Peloid therapy is effective in providing improvement in function, pain, daily living activities, and quality of life in clients with elbow tendinosis, and this effect continues in the short term after treatment” (Gül et al., 2021, p. 666).

In a randomized control trial completed by Kocak et al. (2019), kinesiotape was found to be as effective as steroid injections in reducing pain and increasing functionality. When the two interventions are combined, they are found to be more effective than one intervention at a time (Kocak et al., 2019). Long term treatment results of steroid injections showed effectiveness in pain reduction, grip strength, disability and impaired hand functions (Erpala et al., 2021; Kocak et al., 2019).

Synthesis of Findings

A number of articles reviewed were about the effectiveness of kinesiotaping in reducing pain in clients with elbow tendinosis (Au et al., 2017; Cho et al., 2018; Eraslan et al., 2017; Shakeri et al., 2017; Wegener et al., 2015). The most common comparison noted in the majority of the reviewed articles was kinesiotape intervention compared to alternative intervention approaches on pain, grip strength, and functionality (Atlas et al., 2022; Erpala et al., 2021; Gül et al., 2022; Karlıbel & Aksoy, 2022; Koçak et al., 2019; Kocyigit et al., 2015; Ozmen et al., 2021; Phadke & Desai, 2017; Wegener et al., 2015).

Baptiste (2017) defined and expanded upon the person-environment-occupation model and the different aspects that make up the model. Baptiste (2017) stated that the person, environment, and occupations cannot be separated. This applies to the critically appraised topic paper because of the way in which pain is a part of the person and how it can have a negative impact on their occupational performance. Cleveland Clinic (2016) defined the difference between tendinosis and tendinitis and what was informative of the difference between the terms. Pain is a major concern in individuals with elbow tendinosis and is often hard to define (Fine, 2011).

Limitations

There were some similar limitations present in the reviewed studies. These limitations included small sample sizes (Cho et al., 2018; Guler & Yildirim, 2020; Phadke & Desai, 2017; Wegener et al., 2015), a short follow-up period (Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019), no long-term follow-up (Eraslan et al., 2017; Erpala et al., 2021; Kocak et al., 2019), no control group (Altaş et al., 2022; Kocak et al., 2019; Wegener et al., 2015) and no blinding was used (Erpala et al., 2021; Gül et al., 2022; Wegener et al., 2015). Convenience sampling and recruitment were also commonly used (Cheatham et al., 2021; Shakeri et al., 2018; Simard et al., 2012; Taylor et al., 2015) in the reviewed studies.

The follow-up for several of the studies was between four and eight weeks after injury or diagnosis of elbow tendinosis (Erpala et al., 2021; Guler et al., 2020; Phadke & Desai, 2017). Karlıbel and Aksoy (2022) stated that six weeks is a typical time frame chosen for a follow-up measurement, according to literature reviewed by the authors.

Wegener et al. (2015) examined the use of therapeutic tape on elbow tendinosis clients. They wrote, “despite its popularity and reported benefits in clinical practice, there is still relatively little empirical evidence to support the effectiveness of elastic therapeutic tape for injuries, let alone specific musculoskeletal upper extremity disorders" (Wegener et al., 2015, p. 57). More research and evidence is needed in support of kinesiotape in the use of elbow tendinosis treatment for it to be deemed effective.

Summary

Overall, 28 articles were reviewed thoroughly. The articles included topics on *elbow tendinosis* (Atlas et al., 2022; Au et al., 2017; Cho et al., 2018; Cleveland Clinic, 2016; Eraslan et al., 2017; Erpala et al., 2021; Giray et al., 2019; Gül et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Mayo, 2021; Ozmen et al., 2021; Phadke & Desai, 2017; Pitzer et al., 2014; Shakeri et al., 2018; Smith, 2018; Taylor et al., 2015; Wegener et al., 2015), *kinesiotaping as an intervention* (Atlas et al., 2022; Au et al., 2017; Cheatham et al., 2021; Cho et al., 2018; Eraslan et al., 2017; Erpala et al., 2021;

Giray et al., 2019; Gül et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Kocyigit et al., 2015; Ozmen et al., 2021; Phadke & Desai, 2017; Shakeri et al., 2018; Taylor et al., 2015; Wegener et al., 2015), *alternative interventions to treat elbow tendinosis* (Atlas et al., 2022; Erpala et al., 2021; Giray et al., 2019; Gomes et al., 2013; Gül et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Ozmen et al., 2021; Phadke & Desai, 2017), *pain* (Atlas et al., 2022; Au et al., 2017; Brady et al., 2017; Cho et al., 2018; Cleveland Clinic, 2016; Eraslan et al., 2017; Erpala et al., 2021; Fine, 2011; Giray et al., 2019; Gül et al., 2021; Guler & Yildirim, 2020; Johnson, 2019; Karıbel & Aksoy, 2022; Kocak et al., 2019; Kocyigit et al., 2015; NHS, 2020; Ozmen et al., 2021; Phadke & Desai, 2017; Pitzer et al., 2014; Shakeri et al., 2018; Smith, 2018; Taylor et al., 2015; Wegener et al., 2015), *decreased grip strength* (Atlas et al., 2022; Au et al., 2017; Cho et al., 2018; Eraslan et al., 2017; Erpala et al., 2021; Giray et al., 2019; Gül et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Ozmen et al., 2021; Phadke & Desai, 2017; Pitzer et al., 2014; Shakeri et al., 2018; Wegener et al., 2015), *functional mobility* (Atlas et al., 2022; Au et al., 2017; Eraslan et al., 2017; Gül et al., 2021; Guler & Yildirim, 2020; Karlıbel & Aksoy, 2022; Kocak et al., 2019; Kocyigit et al., 2015; Ozmen et al., 2021; Pitzer et al., 2014; Shakeri et al., 2018; Wegener et al., 2015), *and the chosen theoretical base of PEO* (Baptiste, 2017). The goal of researching these topics was to review existing literature regarding the use of kinesiotape as an intervention in adults with elbow tendinosis. After the review of literature, there is not enough evidence to support the effectiveness of kinesiotape being a more effective intervention than others identified, particularly in the area of occupational therapy and improving the well-being and quality or life of individuals. Further research is needed to support the effectiveness in relation to occupational therapy and individuals with elbow tendinosis engaging in meaningful occupations to promote well-being and quality of life or to confirm that it is an intervention that should be discontinued.

Clinical Bottom Line

How does addressing the effectiveness of the use of kinesiotape for adults with elbow tendinosis in reducing pain promote engagement in meaningful occupations in order to increase quality of life and well-being?

Kinesiotape is defined as an elastic cotton strip with acrylic adhesive (Johnson, 2019). The use of kinesiotape is to aid muscle movement with the intent to relieve pain and provide support to joints and muscles (Wegener et al., 2015). Kinesiotape, corticosteroid injections, counterforce brace, peloid therapy, dry needling, sham taping, rest, and medication all showed similar effectiveness at the end of treatment studies in literature reviewed (Atlas et al., 2022; Ersalan et al., 2017; Gül et al., 2021; Kocak et al., 2019; Kocyigit et al., 2015; Phadke & Desai, 2017). Participants in studies reported pain, a decrease in grip strength, and decreased functional mobility to be the biggest motivator to seek treatment (Eraslan et al., 2017; Karlıbel & Aksoy, 2022; Shakeri et al., 2018; Wegener et al., 2015). The synthesis of information in this critically appraised topic paper was guided by the PEO model of occupational therapy to determine the interaction between the person, their occupations, and the environment (Baptiste, 2017). Pain associated with elbow tendinosis can have an impact

on an individual's ability to complete the things that they want and need to do each and every day (Wegener et al., 2015).

Pain and difficulties in function can decrease quality of life and overall well-being (Cho et al., 2018; Fine, 2011; Guler & Yildirim, 2020). Individuals who experience high levels of pain or pain for long periods of time can no longer participate in the activities and occupations they find meaningful (Fine, 2011; Guler & Yildirim, 2020). They also might not be able to fulfill the roles they would like to or need to fulfill. A decrease in function can cause someone to withdraw from activities they enjoy doing as well as make it more difficult to complete everyday tasks they need to complete (Fine, 2011; Guler & Yildirim, 2020). This can result in a decreased quality of life and well-being for that person (Fine, 2011; Guler & Yildirim, 2020). It is the goal of occupational therapists to help clients participate in the activities the clients find meaningful. In the case of elbow tendinosis, this would mean decreasing pain and improving functionality in order for individuals to engage in activities they need to and want to do as independently as possible. Quality of life and well-being are very important in the field of occupational therapy and should be maximized whenever possible.

When completing the literature review for this critically appraised topic paper, there was a noted lack of culture represented in the literature. It is known that social and cultural constructs have a profound impact on the way a person experiences pain (Brady, 2017). There is a growing population of cultural and linguistically diverse (CALD) populations in many countries, and given this, it is important to factor in the unique differences of individuals when treating pain (Brady, 2017).

Timing is an important consideration when looking at healing and the recovery process. For an overuse injury like elbow tendinosis, natural healing with rest but without proper intervention occurs over the six weeks following symptom onset (Karlıbel & Aksoy, 2022). During periods of initial pain and functional impairment, kinesiotape as an intervention as well as alternatives including counterforce braces (Phadke & Desai, 2017), forearm-band therapy (Karlıbel & Aksoy, 2022), peloid therapy (Gul et al., 2021), steroid injections (Kocak et al., 2019), dry needling (Atlas et al., 2023), ultrasound therapy (Ozmen et al., 2021), and extracorporeal shock wave therapy (Ozmen et al., 2021) were supported in the literature as being effective in reducing pain. However, it was not supported that kinesiotape should be used long-term due to no difference in pain and function across time (Erpala et al., 2021; Taylor et al., 2015). Because of this, it can potentially be used as a pain control method during recovery rather than the focus of an intervention plan.

There are many healthcare professionals that work in collaboration to evaluate and provide intervention for clients with elbow tendinosis. The members of this interprofessional healthcare team can include but is not limited to general care physicians, nurses, orthopedic surgeons, occupational therapists, physical therapists, physical medicine and rehabilitation specialists, and sports medicine specialists (Mayo, 2021). The team members can differ due to availability at the facility, seriousness of the injury, a client's treatment plan, and other factors regarding therapy. Each member has their specific role in the team and they work together to provide holistic healthcare services for the good of the client (Mayo, 2021).

Practical Suggestions for Practice

- Kinesiotape is defined as an elastic cotton strip with acrylic adhesive (Johnson, 2019). The use of kinesiotape is to aid muscle movement with the intent to relieve pain, reduce swelling and inflammation, and provide support to joints and muscles (Wegener et al., 2015). The word kinesiotape was used throughout this critically appraised topic paper, chosen over the use of therapeutic tape or KT, given the difference in meaning of the words.
- The authors of this critically appraised topic paper have identified a limitation in the research. It is difficult to link the treatment of elbow tendinosis using kinesiotape with the field of occupational therapy due to lack of research on the topic.
- The effect of pain on different cultural groups has not been studied in regard to epicondylitis and kinesiotape as evidenced by the diversity in culture not being mentioned in articles reviewed for this critically appraised topic paper (Au et al., 2017; Cheatham et al., 2021; Cho et al., 2018; Karlıbel & Aksoy, 2022; Ozmen et al., 2021; Phadke & Desai, 2017; Shakeri et al., 2018; Taylor et al., 2015; Wegener et al., 2015).
- Interprofessional healthcare teams are beneficial when treating clients in order to provide holistic, client-centered care. General care physicians, nurses, orthopedic surgeons, occupational therapists, physical therapists, physical medicine and rehabilitation specialists, and sports medicine specialists work together to treat clients with elbow tendinosis (Mayo, 2021).
- When completing the review of existing literature, there were no studies found that were completed in the United States on elbow tendinosis, kinesiotaping, and the implication on occupational engagement. Research should be completed in the United States to tie in the unique cultural and social aspects of society.

References

Altaş, E. U., Birlik, B., Şahin Onat, Ş., & Özoğul Öz, B. (2022). The comparison of the effectiveness of kinesio taping and dry needling in the treatment of lateral epicondylitis: A clinical and ultrasonographic study. Journal of Shoulder and Elbow Surgery, 31(8), 1553–1562. https://doi.org/10.1016/j.jse.2022.03.010

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). American Journal of Occupational Therapy, 74(Suppl. 2), 7412410010. https://doi.org/10.5014/ajot.2020.74S2001

Au, I. P. H., Fan, P. C., Lee, W. Y., Leong, M. W., Tang, O. Y., An, W. W., & Cheung, R. T. (2017). Effects of kinesio tape in individuals with lateral epicondylitis: A deceptive crossover trial. Physiotherapy Theory and Practice, 33(12), 914–919. https://doi.org/10.1080/09593985.2017.1359871

Baptiste, S. (2017). The person-environment-occupation model. In J. Hinojosa, P. Kramer, & C. B. Royeen (Eds.), Perspectives on human occupation: Theories underlying practice (2nd ed., pp. 137-159). F. A. Davis Company.

Brady, B., Veljanova, I., & Chipchase, L. (2017). An exploration of the experience of pain among culturally diverse migrant communities. Rheumatology Advances in Practice, 1(1), 1-14. https://doi-org.ezproxylr.med.und.edu/10.1093/rap/rkx002

Cheatham, S. W., Baker, R. T., & Abdenour, T. E. (2021). Kinesiology tape: A descriptive survey of healthcare professionals in the United States. International Journal of Sports Physical Therapy, 16(3), 778-796. https://doi.org/10.26603/001c.22136

Cho, Y. -T., Hsu, W. -Y., Lin, L. -F., & Lin, Y. -N. (2018). Kinesio taping reduces elbow pain during resisted wrist extension in patients with chronic lateral epicondylitis: A randomized, double-blinded, cross-over study. BMC Musculoskeletal Disorders, 19, 1-8. https://doi.org/10.1186/s12891-018-2118-3

Cleveland Clinic (2016). Tendinitis or tendinosis? Why the difference is importantly what treatments help. https://clevelandclinic.org/tendinitis-tendinosis-difference-important-treatments-help/

Eraslan, L., Yuce, D., Erbilici, A., & Baltaci, G. (2017). Does kinesiotaping improve pain and functionality in patients with newly diagnosed lateral epicondylitis? Knee Surgery, Sports Traumatology, Arthroscopy, 26, 938-945. https://doi.org/10.1007/s00167-017-4691-7

Erpala, F., Ozturk, T., Zengin, E. C., & Bakir, U. (2021). Early results of kinesio taping and steroid injections in elbow lateral epicondylitis: A randomized, controlled study. Medicina (Kaunas, Lithuania), 57(4), 306. https://doi.org/ezproxylr.med.und.edu/10.3390/medicina57040306

Fine, P. G. (2011). Long-term consequences of chronic pain: Mounting evidence for pain as a neurological disease and parallels with other chronic disease states. Pain Medicine, 12(7), 996-1004. https://doi.org/10.1111/j.1526-4637.2011.01187.x

Giray, E., Karali-Bingul, D., & Akyuz, G. (2019). The effectiveness of kinesiotaping, sham taping or exercises only in lateral epicondylitis treatment: A randomized controlled study. Physical Medicine and Rehabilitation, 11(7), 681-693. https://doi.org/10.1002/pmrj.12067

Gomes, C., Carretero, M. I., Pozo, M., Maraver, F., Cantista, P., Armijo, F., Legido, J. L., Teixeira, F., Rautureau, M., & Delgado, R. (2013). Peloids and pelotherapy: Historical evolution, classification and glossary. Applied Clay Science, 75-76, 28–38. https://doi.org/10.1016/j.clay.2013.02.008

Gül, S., Yılmaz, H., & Karaarslan, F. (2021). Comparison of the effectiveness of peloid therapy and kinesio taping in tennis elbow patients: A single-blind controlled study. International Journal of Biometeorology, 66(4), 661–668. https://doi.org/10.1007/s00484-021-02225-7

Guler, T., & Yildirim, P. (2020). Comparison of the efficacy of kinesiotaping and extracorporeal shock wave therapy in patients with newly diagnosed lateral epicondylitis: A prospective randomized trial. Nigerian Journal of Clinical Practice, 23(5), 704-710. hhtp://doi.org/10.4103/njcp.njcp_45_19

Johnson, C. (2019). KT Tape: history, pseudoscience and its future in athletics. The Aragon Outlook. Retrieved from https://aragonoutlook.org/2019/11/kt-tape-history-pseudoscience-and-its-future-in-athletics/

Karlıbel, İ. A., & Aksoy, M. K. (2022). The efficacy of kinesio taping versus forearm-band therapy in treating lateral epicondylitis: A prospective, single-blind, randomized, controlled clinical trial. Journal of Surgery & Medicine (JOSAM), 6(3), 223-228. https://doi.org/10.28982/josam.1063575

Koçak, F. A., Kurt, E. E., Şaş, S., Tuncay, F., & Erdem, H. R. (2019). Short-term effects of steroid injection, kinesio taping, or both on pain, grip strength, and functionality of patients with lateral epicondylitis. American Journal of Physical Medicine & Rehabilitation, 98(9), 751–758. https://doi.org/10.1097/phm.0000000000001184

Kocyigit, F., Turkmen, M. B., Acar, M., Guldane, N., Kose, T., Kuyucu, E., & Erdil, M. (2015). Kinesio taping or sham taping in knee osteoarthritis? A randomized, double-blind, sham-controlled trial. Complementary Therapies in Clinical Practice, 21(4), 262–267. https://doi.org/10.1016/j.ctcp.2015.10.001

Mayo Foundation for Medical Education and Research. (2021, February 25). Tennis elbow. Mayo Clinic. Retrieved from https://www.mayoclinic.org/diseases-conditions/tennis-elbow/doctors-departments/ddc-20351993

NHS. (2020, February 26). Steroid injections. Crown. Retrieved from https://www.nhs.uk/conditions/steroid-injections/#:~:text=Steroid%20injections%2C%20also%20called%20corticosteroid,only%20given%20by%20healthcare%20professionals

Ozmen, T., Koparal, S. S., Karatas, O., Eser, F., Ozkurt, B., & Gafuroglu, U. (2021). Comparison of the clinical and sonographic effects of ultrasound therapy, extracorporeal shock wave therapy, and kinesio taping in lateral epicondylitis. Turkish Journal of Medical Sciences, 51(1), 76-83. https://doi.org/10.3906/sag-2001-79

Phadke, S., & Desai, S. (2017). Effectiveness of kinesiotape versus counterforce brace as an adjunct to occupational therapy in lateral epicondylitis. Indian Journal of Physiotherapy and Occupational Therapy, 11(2), 42-46. https://doi.org/10.5958/0973-5674.2017.00033.8

Pitzer, M. E., Seidenberg, P. H., & Bader, D. A. (2014). Elbow tendinopathy. Medical Clinics of North America, 98(4), 833-849. https://doi.org/10.1016/j.mcna.2014.04.002

Shakeri, H., Soleimanifar, M., Arab, A. M., & Behbahani, S. H. (2018). The effects of kinesiotape on the treatment of lateral epicondylitis. Journal of Hand Therapy, 31(1), 35-41. https://doi.org/10.1016/j.jht.2017.01.001

Smith, J. (2018, January 9). Tendinosis: Symptoms, causes, and treatment. Medical News Today. Retrieved from https://www.medicalnewstoday.com/articles/320558

Taylor, R. L., Brown, T., & O'Brien, L. (2015). Knowledge of and willingness to recommend kinesiotape for upper limb overuse injuries: A comparison of therapists', GPs' and surgeons' perspectives. International Journal of Therapy and Rehabilitation, 22(5), 238–245. https://doi.org/10.12968/ijtr.2015.22.5.238

Wegener, R. L., Brown, T., & O'Brien, L. (2015). The use of elastic therapeutic tape and eccentric exercises for lateral elbow tendinosis: A case series. Hand therapy, 20(2), 56–63. https://doi.org/10.1177/1758998315580823