 THE EFFECTS OF ELASTIC TAPING ON PAIN IN PATIENTS WITH SHOULDER IMPINGEMENT SYNDROME: A SYSTEMATIC REVIEW

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Introduction

Shoulder impingement syndrome (SIS), is a loosely defined term for a variety of disorders of the shoulder. SIS is often associated with rotator cuff tendinosis and inflammation of a variety of structures found within the subacromial space. Regardless of etiology, it seems to result in pain, weakness, and/or decreased range of motion due to irritation and inflammation in tissues of the shoulder.

General treatment of SIS has evolved to include a variety of interventions with one of the most common treatments being strengthening, specifically the scapular stabilizers. Lack of strength, poor muscle firing, and pain can be an obstacle for patients to overcome in early stages of therapy. Elastic taping such as Kinesiotape or “other tape” has been proposed to bridge this gap.

In general, there has been a number of different proposed benefits of elastic taping. Proposed benefits include facilitating an increase in patient’s perception of decreased muscle facilitation, reduced delayed onset muscle soreness, as well as muscle fatigue, enhanced healing, reduction in edema or swelling, improved drainage of lymph, improved blood flow, and an increase in pain inhibition. One theme that runs prevalent and parallel to these propositions, however, is the lack of research in the literature verifying the effectiveness elastic taping has been theorized to provide. Of these proposed benefits, pain can be easily tracked with an outcome measure like the visual analog scale (VAS) or numeric pain rating scale (NPR or NPRS). Elastic tape is theorized to decrease pressure between tissues acting to decompress subcutaneous pain receptors or nociceptors thereby decreasing patient pain.

Use of elastic taping has gained in popularity as evident on athletes in professional sporting events and the Olympic games which has led to its incorporation into use in therapeutic populations such as the elderly and non-athletic patients. If physical therapists are to appropriately utilize this intervention, then the question to its incorporation into use on the shoulder should be: What are the effects of elastic taping on pain reduction as seen in patients with shoulder impingement syndrome?

Methodology

Search Strategy - Databases searched: CINAHL complete, Embase searched, Medline searched, and Cochrane central register trials. MEDLINE, SPORTDiscus, and Ovid. Search terms used: 1) “shoulder” and “taping” 2) “shoulder” and “taping” and “impingement” 3) “shoulder impingement” and “taping” 4) “shoulder impingement” and “elastic tape” 5) “shoulder impingement” and “elastic taping”. Initial searches yielded 472 studies after which duplicates were removed narrowing the studies to 263. The screening process of title and abstract review decreased the yield of studies from 263 to 23. This level of review identified studies utilizing elastic taping on shoulder impingement with an outcome measure. Full text hard copies of the 23 studies were obtained. Eighteen (18) studies were removed following the full text examinations leaving 5 studies. Studies were incorporated into the review if the subjects were diagnosed with SIS and elastic taping was the intervention used. Specific taping techniques and brand of elastic tape were not taken into consideration for inclusion. Only studies using VAS as an outcome measure were included. See Diagram 1 for a visual representation of this process.

Results

Use of the AACPDM quality assessment tool revealed that out of the five studies reviewed in the systematic review, two studies (Shakeri 2013 and Thelen 2008) boasted a level II research design while the remaining three studies (Shaheen 2015, Selkowitz 2007, Pogliaghi 1998) were a level IV research design. The two strongest studies (level II’s) each reported immediate pain reduction in the patients who received the taping intervention, highlighting the acute effectiveness of this intervention and reporting that the pain reducing quality of elastic taping intervention wore off after time (>6 days). Only one study out of five, a level IV with a quality rating of 4/7 (Selkowitz 2007) reported no pain reduction in the patients who received the elastic taping intervention. The remaining four studies all reported a reduction in pain. Two studies (Shakeri 2013, Pogliaghi 1998) also reported a significant decrease in nocturnal pain as a result of the taping intervention.

Discussion

As a result of the analysis of the five studies, it is hypothesized that elastic taping appears to decrease pain in patients with shoulder impingement syndrome. From the review it appears the most significant results were reduction of acute pain and pain during sleep. The pain reduction also appears to be of short duration, days as opposed to weeks. The Shaheen study showed that 10 of the 11 subjects preferred wearing elastic tape as opposed to any other taping option. The only study that did not seem to show a significant reduction in pain was a level IV study of moderate strength. While there was a reduction in pain during movement, the already low average of initial pain reports were already so low that a further significant reduction in pain with the tape intervention applied. The studies’ data provides some insight into the benefits of pain reduction in patients with SIS. Although there was no reported relief of pain, a reduction in pain seems to be immediate and elastic taping may be able to provide comfort from nocurnal pain. Therefore, while elastic taping “may” not be a “quick fix” to SIS, it may be a valuable tool in pain control.

Conclusion/Recommendation

Elastic taping displays effectiveness of pain reduction in the acute phase of shoulder impingement syndrome. Physical therapists can take advantage of this reduction in pain and perform more advanced therapeutic interventions that may not have been tolerated otherwise. Elastic taping decreases pain which allows for the opportunity of improvement in ROM. As a result, patients can perform movement systems that they previously could not due to their pain. This also leads to more productive therapeutic sessions due to the patient’s ability to perform previous exercises that were too painful. If improvements in shoulder kinematics can be obtained, maybe it is possible postural improvements could be attained. This progression may lead to a reduction in shoulder impingement syndrome symptoms which leads to decreased risk for future complications at the shoulder complex. Elastic taping decreases pain allowing the patient to increase therapeutic intensity and could be considered an appropriate adjunct intervention for treatment of shoulder impingement patients.

References