Tennis elbow or lateral epicondylitis is one of the most common lesions of the arm with a well-defined clinical presentation, which significantly impacts on the community. Many treatment approaches have been proposed to manage this condition. One is Cyriax physiotherapy. The effectiveness and reported effects of this intervention are reviewed.

Although the signs and symptoms of tennis elbow are clear and its diagnosis is easy, to date no ideal treatment has emerged. A myriad of conservative treatments have been used. Over 40 different methods have been reported in the literature. These treatments have different theoretical mechanisms of action, but all have the same aim, to reduce pain and improve function. Such a variety of treatment options suggests that the optimal treatment strategy is not known, and more research is needed to discover the most effective treatment in patients with tennis elbow.

A common intervention is Cyriax physiotherapy. The purpose of this article is to describe its use in the treatment of tennis elbow and its effects.

**Deep transverse friction**

Although the word friction is technically incorrect and would be better replaced by "massage"; this name will be used in this article. DTF is a specific type of connective tissue massage applied precisely to the soft tissue structures such as tendons. It was developed in an empirical way by Cyriax and is currently used extensively in rehabilitation practice.

It is vital that DTF be performed only at the exact site of the lesion, with the depth of friction tolerable to the patient. The effect is so localised that, unless the finger is applied to the exact site and friction given in the right direction, relief cannot be expected. DTF must be applied transversely to the specific tissue involved, unlike superficial massage given in the longitudinal direction parallel to the vessels, which enhances circulation and returns fluid. The therapist’s fingers and patient’s skin must move as a single unit, otherwise subcutaneous fascia could lead to blister formation or subcutaneous bruising.

As a general guideline, DTF is applied for 10 minutes after the numbing effect has been achieved, every other day or at a minimum interval of 48 hours, because of the traumatic hyperaemia induced, to prepare the tendon for manipulation, which is performed immediately after DTF. For it to be considered a Cyriax intervention, the two components must be used together in the order mentioned. Patients must follow the protocol three times a week for four weeks.

Deep transverse friction (DTF) in combination with Mill’s manipulation, which is performed immediately after DTF. For it to be considered a Cyriax intervention, the two components must be used together in the order mentioned. Patients must follow the protocol three times a week for four weeks.

**CYRIAX PHYSIOTHERAPY**

Cyriax and Cyriax claimed substantial success in treating tennis elbow using deep transverse friction (DTF) in combination with Mill’s manipulation, which is performed immediately after DTF. For it to be considered a Cyriax intervention, the two components must be used together in the order mentioned. Patients must follow the protocol three times a week for four weeks.

Deep transverse friction (DTF) in combination with Mill’s manipulation, which is performed immediately after DTF. For it to be considered a Cyriax intervention, the two components must be used together in the order mentioned. Patients must follow the protocol three times a week for four weeks.
provided that the patient has a full range of passive elbow extension. If passive elbow extension is limited, the manipulative thrust will affect the elbow joint, rather than the common extensor tendon, possibly causing traumatic arthritis. 8 10 It is defined as a passive movement performed at the end of range—that is, once all the slack has been taken up—and is a minimal amplitude, high velocity thrust. 8 10 The aim of this technique, again without properly designed controlled studies to prove this, is to elongate the scar tissue by rupturing adhesions within the teno-osseous junction, making the area mobile and pain free. 12 13 22

Mill’s manipulation for tennis elbow should be conducted as follows. 9 10 23 Position the patient on a chair with a backrest and stand behind the patient. Support the patient’s arm under the crook of the elbow with the shoulder joint abducted to 90° and medially rotated. The forearm will automatically fall into pronation. Place the thumb of your other hand in the web space between the patient’s thumb and index finger and fully flex the patient’s wrist and pronate the forearm. Move the hand supporting the crook of the elbow on to the posterior surface of the elbow joint and, while maintaining full wrist flexion and pronation, extend the patient’s elbow until you feel that all the slack has been taken up in the tendon. Step sideways to stand behind the patient’s head, taking care to prevent the patient from leaning away either forwards or sideways, which would reduce the tension on the tendon. Apply a minimal amplitude thrust by simultaneously side-flexing your body away from your arms and pushing smartly downwards with the hand over the patient’s elbow.

Cyriax and Cyriax cautioned that, if poor manipulation is performed by failing to maintain full wrist flexion, the thrust is absorbed mainly by the elbow joint, potentially causing traumatic arthritis. Depending on the magnitude of the thrust, full wrist flexion probably does little to protect the joint from such a manipulation if this is a really serious consideration.

This manoeuvre is conducted once only at each treatment session because it is not a comfortable procedure for the patient, and the effects of treatment often become fully apparent over the following few days. 8 10 22

**Studies in which Cyriax physiotherapy for tennis elbow has been used**

Computerised searches were performed using Medline (from 1966 to March 2004), Embase (from 1988 to March 2004), Cinahl (from 1982 to March 2004), Index to Chiropractic literature (from 1992 to March 2004), and Chiroprars (from 1994 to March 2004) databases. Only English language publications were considered. The search terms “tennis elbow”, “lateral epicondylitis”, “Cyriax physiotherapy”, “treatment”, “management”, “physiotherapy”, “randomised control trials” were used individually or in various combinations. Other references identified from existing reviews and other papers cited in the publications were searched. Moreover, we tried to identify further citations from the reference sections of papers retrieved, by contacting experts in the field, and from the Cochrane Collaboration, an international network of experts who search journals for relevant citations, but we did not find any more studies. Unpublished reports and abstracts were not considered.

Only one study was found in which Cyriax physiotherapy had been used in the management of tennis elbow. Verhaar et al 24 compared the effects of corticosteroid injections with Cyriax physiotherapy in treating patients with tennis elbow. The results showed that the corticosteroid injection was significantly more effective on the outcome measures (pain, function, grip strength, and global assessment) than Cyriax physiotherapy at the end of the treatment, but at the follow
up one year after the end of treatment, there were no significant differences between the two treatment groups. This study is not helpful for practicing physiotherapists, because most do not use injections to manage this condition. It is better to compare Cyriax physiotherapy with other physiotherapy treatments in order to assess its effects. In two studies,\(^1,\(^4\) only DTF was used to treat patients rather than all the components of Cyriax physiotherapy. Therefore we do not know if Cyriax physiotherapy, which is mainly based on clinicians’ claims, is effective as the sole treatment for tennis elbow or if it is better than other methods. Randomised controlled trials are needed to confirm the clinicians’ claims.

**CONCLUSIONS**

Although Cyriax physiotherapy is commonly used in the treatment of tennis elbow, more research is needed to assess firstly its effectiveness and secondly the effects of both its components.

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