

Ayurvedic Physiotherapy in Sports Injury (Tennis Elbow)

Dr. Gagan Singh Dhakad, Dr. Poonam, Dr. Shivji Dhakad

Dr. Gagan Singh Dhakad (Assistant professor)
Dr. Poonam (Assistant professor- Shalya Tantra)
Dr. Shivji Dhakad (Consultant-Pediatric)
Contact:7404677537
Email:dr.poonamverma123@gmail.com

Abstract: Doctors first identified Tennis Elbow (or lateral epicondylitis) more than 100 years ago. Today nearly half of all tennis players will suffer from this disorder at some point. Ayurveda and Physiotherapy were found highly efficacious in the management of Tennis Elbow (or lateral epicondylitis). But the integration of these two systems yields better outcomes; there is a lack of more evidence based study that offers a better and deeper understanding. The aim of the study was to know the effectiveness of an interdisciplinary treatment approach of Ayurveda and Physiotherapy in the management of Tennis Elbow (or lateral epicondylitis). Ayurveda consists of cleansing therapy to create balance in the Doshas. The physiotherapy treatment was based on electrotherapy and strengthening of region.

Keywords; Ayurveda, Physiotherapy, Tennis Elbow, Lateral epicondylitis, Sports injury, Interdisciplinary approach.

INTRODUCTION

Tennis elbow is an injury to the muscles and tendons on the outside (lateral aspect) of the elbow that results from overuse or repetitive stress. The narrowing of the muscle bellies of the forearm as they merge into the tendons creates highly focused stress where they insert into the bone of the elbow.

There are 2 additional strain related conditions, which are often mistaken for Tennis Elbow. These being Golfer's Elbow & Bursitis.

Before we delve into the details of what Tennis Elbow actually is and options that are available for relieving & preventing the pain. Distinguishing characteristics of each of these 3 ailments.

Tennis Elbow (lateral epicondylitis) Outside of Elbow Cause & Symptoms	Golfer's Elbow (medial epicondylitis) Inside of Elbow Cause & Symptoms	Bursitis Back of Elbow Cause & Symptoms
The onset of pain, on the outside (lateral) of the elbow, is usually gradual with tenderness felt on or below the joint's bony prominence. Movements such as gripping, lifting and carrying tend to be troublesome.	The causes of golfer's elbow are similar to tennis elbow but pain and tenderness are felt on the inside (medial) of the elbow, on or around the joint's bony prominence.	Often due to excessive leaning on the joint or a direct blow or fall onto the tip of the elbow. A lump can often be seen and the elbow is painful at the back of the joint



WHY TENNIS ELBOW HAPPENS

Tennis elbow injuries mostly occur if repetitive micro-trauma is placed on the tissues in question. The micro-trauma involves forces that the tissues are unable to cope with, if we suddenly increases our playing intensity coupled with a poor technique essentially the backhand you reduces ours body's ability to withstand these forces. These forces can be worsened by several predisposing factors.

There are many factors that can lead to tennis elbow;

1. If the amount of external rotation in your shoulder is restricted, it can lead to extra strain being placed on the elbow (Bender, 1994).
2. An overuse injury during wrist extension can occur if your extensor carpi radialis brevis (forearm muscle involved in wrist extension) takes on the role of flexing the elbow ahead of the biceps (Bender, 1994).
3. A lack of mobility in your back (Bender, 1994) leading to stiffness.
4. Poor flexibility (Kelley, 1994)

The explanation for last two factors is that the ligament of palm along with fingers and also in the back of arms when afflicted with *Vata* produces loss of function in arms. This is known as "*Vishvachi*" (*Su.Ni. 1/75*)

In *Sushruta Samhita*, *Nidana Sthana Acharya Sushrut* states that *Vata* situated in shoulder dries up its binding element (*Kapha*) and thus produces "*Amsashosha*" (weakness and emaciation of shoulder muscles). The same while contracting the ligaments causes "*Avababuka*"

SYMPTOMS OF TENNIS ELBOW

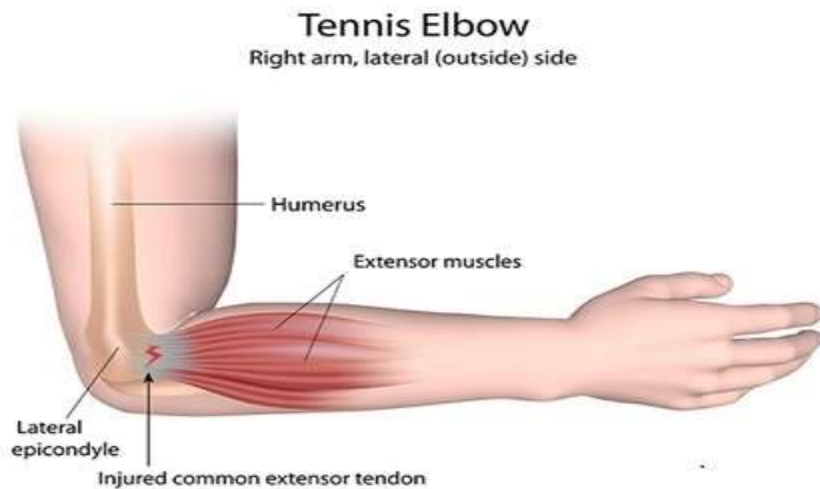
1. Recurring pain on the outside of the upper forearm just below the bend of the elbow; occasionally, pain radiates down the arm toward the wrist.
2. Pain caused by lifting or bending the arm or grasping even light objects such as a coffee cup.
3. Difficulty extending the forearm fully (because of inflamed muscles, tendons and ligaments).
4. Pain that typically lasts for 6 to 12 weeks; the discomfort can continue for as little as 3 weeks or as long as several years.

MECHANISM OF DAMAGE

The damage that tennis elbow incurs consists of tiny tears in a part of the tendon and in muscle coverings.

After the initial injury heals, these areas often tear again, which leads to hemorrhaging and the formation of rough, granulated tissue and calcium deposits within the surrounding tissues.

Collagen, protein, leaks out from around the injured areas, causing inflammation. The resulting pressure can cut off the blood flow and pinch the radial nerve, one of the major nerves controlling muscles in the arm and hand. Repeated trauma is the external cause (*Agantuja karana*) which manifests the symptom and later vitiates *Pitta* and *Vata* dosha causing inflammation and pain.



Tendons, which attach muscles to bones, do not receive the same amount of oxygen and blood that muscles do, so they heal more slowly. In fact, some cases of tennis elbow can last for years, though the inflammation usually subsides in 6 to 12 weeks.

Many medical textbooks treat tennis elbow as a form of tendonitis, which is often the case, but if the muscles and bones of the elbow joint are also involved, then the condition is called epicondylitis.

However, if you feel pain directly on the back of your elbow joint, rather than down the outside of your arm, you may have bursitis, which is caused when lubricating sacs in the joint become inflamed. If you see swelling, which is almost never a symptom of tennis elbow, you may want to investigate other possible conditions, such as arthritis, infection, gout or a tumor.

TO PREVENT TENNIS ELBOW:

1. Lift objects with your palm facing your body.
2. Try strengthening exercises with hand weights. With your elbow cocked and your palm down, repeatedly bend your wrist. Stop if you feels any pain.
3. Stretch relevant muscles before beginning a possibly stressful activity by grasping the top part of your fingers and gently but firmly pulling them back toward your body.
4. Keep your arm fully extended and your palm facing outward.

TO PREVENT A RELAPSE

1. Discontinue or modify the action that is causing the strain on your elbow joint. If you must continue, be sure to warm up for 10 minutes or more before any activity involving your arm, and apply oil followed by warm sudation to it afterward. Take more frequent breaks.
2. Try strapping a band around the forearm just below the elbow. If the support seems to help you lift objects such as heavy books, then continue with it. Be aware that such bands can cut off circulation and impede healing, so they are best used once tennis elbow has disappeared.

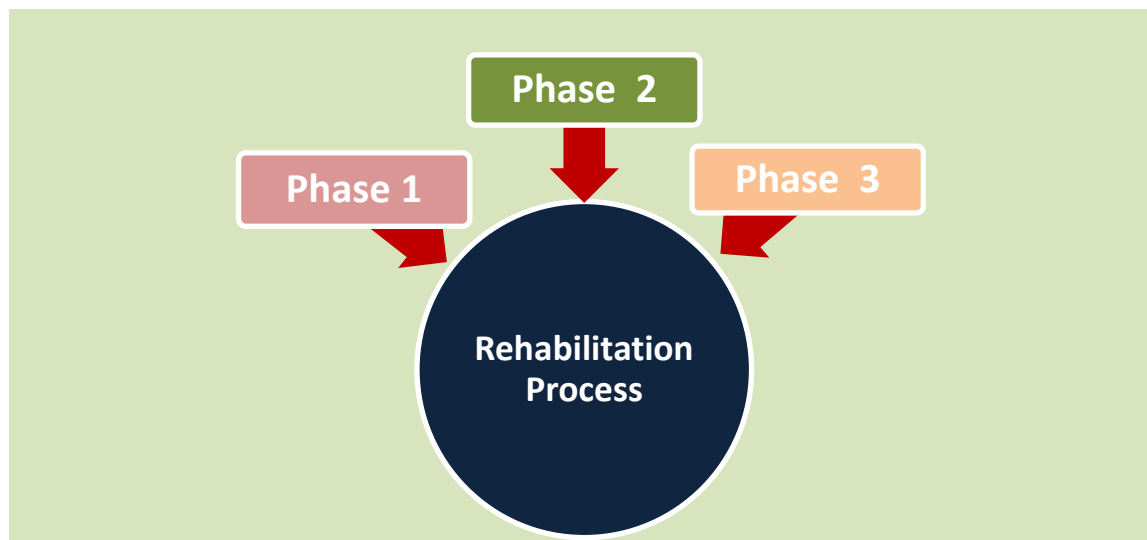
THERAPEUTIC INTERVENTIONS

REHABILITATION

Acharya Sushruta states "As wheel moves on by lubricating the axis, joints also function properly when supported by *Kapha*" (Su.Sha.4/15). Hence our aim should be to rebalance the *Kapha*.

Epicondylitis often becomes a chronic problem if not cared for properly. For this reason, it must be stressed that the rehabilitation process should not be progressed until little or no pain is experienced at the level of performing. Regaining full strength and flexibility is critical before returning to your previous level of sports activity.

In general, the rehabilitation process can be divided into three phases:



PHASE 1

Goals:

Decrease inflammation and pain, promote tissue healing, and retard muscle atrophy. During the acute stage of your injury, whether the medial or lateral elbow is affected, follow the RICE principle:

1. **R- Rest** this means avoiding further overuse not absence of activity. You should maintain as high an activity level as possible while avoiding activities that aggravate the injury. Absolute rest should be avoided as it encourages muscle atrophy, deconditions tissue, and decreases blood supply to the area, all of which is detrimental to the healing process. Pain is the best guide to determine the appropriate type and level of activity.
2. **I- Ice** - is recommended as long as inflammation is present. This may mean throughout the entire rehabilitation process and return to sports. Ice decreases the inflammatory process slows local metabolism and helps relieve pain and muscles spasm.
3. **C-E- Compress and Elevate** - if appropriate to assist venous return and minimize swelling.

PHASE-2

Goals:

Improves flexibility, increase strength and endurance, increases functional activities and return to function.

STRETCHING

Gentle stretching exercises including wrist flexion, extension and rotation. The elbow should be extended and not flexed to increase the amount of stretch as required. These stretches should be held for 20-30 seconds and repeated 5-10 times, at least twice a day. Vigorous stretching should be avoided, do not stretch to the point of pain that reproduces your symptoms.

STRENGTHENING

With the elbow bent and the wrist supported perform the following exercises:

1. **Wrist Extension-** Place 1 lb. weight in hand with palm facing downward (pronated); support forearm at the edge of a table or on your knee so that only your hand can move. Raise wrist/hand up slowly (concentric contraction), and lower slowly (eccentric contraction).
2. **Wrist Flexion-** Place 1 lb. weight in hand with palm facing upward (supinated): support forearm at the edge of a table or on your knee so that only your hand can move. Bend wrist up slowly (concentric), and then lower slowly (eccentric),(similar to exercise above).
3. **Combined Flexion/Extension-** Attach one end of a string to a cut broom stick or similar device, attach the other end to a weight. In standing, extend your arms and elbows straight out in front of you. Roll the weight up from the ground by turning the wrists, Flexors are worked with the palms facing upward. Extensors are worked with the palms facing downward.
4. **Forearm Pronation/Supination-** Grasp hammer (wrench, or some similar device) in hand with forearm supported. Rotate hand to palm down position, return to start position (hammer perpendicular to floor), rotate to palm up position, repeat. To increase or decrease resistance, by move hand farther away or closer towards the head of the hammer.
5. **Finger Extension-** Place a rubber band around all five finger tips. Spread fingers 25 times, repeat 3 times. If resistance is not enough, add a second rubber.
6. Band or use a rubber band of greater thickness which will provide more resistance.
7. **Ball Squeeze-** Place rubber ball or tennis ball in palm of hand, duced squeeze 25 times, repeat 3 times. If pain is reproduced squeeze folded sponge or piece of foam.

For all of the exercises (except combined flexion\extension) perform 10 repetitions 3-5 times a day. With the combined flexion/extension perform until you feel fatigue. With all exercises use pain as your guide all exercises should be pain free.

When to progress: Begin with a 1 lb. weight and perform 3 sets of 10 repetitions. When this becomes easy, work up to 15 repetitions. Increase the weight only when you can complete 15 repetitions 3 times without difficulty. After exercising, massage across the area of tenderness with an ice cube for about 5 minutes. You might also try filling a paper cup half-full with water and freeze; peel back a portion of the paper cup to expose the ice.

PHASE-3

Goals: Improve muscular strength and endurance, maintain and improve flexibility, and gradually return to prior level of sport or high level activity. Continue the stretching and strengthening exercises emphasizing the eccentric contractions of wrist flexion and extension. In this regard, since the eccentric contractions are movements with gravity, do not let the weight drop too quickly; lower

the weight in a controlled fashion. With the combined wrist flexion/ex- tension exercise, work on increasing speed when rolling up the string with the attached weight as this will improve endurance.

DISCUSSION

When your symptoms are resolved and have regained full range of motion and strength, you may gradually increase your level of playing activity. An example of one gradual progressive return to tennis is as follows:

LATERAL EPICONDYLITIS	MEDIAL EPICONDYLITIS
15 minutes forehand only	15 minutes backhand and lobs
30 minutes forehand only	30 minutes backhand and lobs
30 minutes forhand and Two handed backhand	30 minutes backhand, lobs, forehand (no top spin)
45 minutes forhand & backhand forhand	45 minutes backhand, lobs
45 minutes all stokes	45 minutes all stokes
Serve	Serve
Full play	Full play
Competitive play	Competitive play

Now a days, physiotherapists do Shock wave therapy which is a new, non-invasive technique for treatment of chronic tennis elbow. This technique is increasingly replacing surgery.

Introduction

Shock Wave Therapy is a new technique; used for treatment of conditions such as tennis elbow, heel spur (plantar fasciitis), calcification of shoulder tendons (shoulder pain) and Peyronies. The technology is based on lithotripter machines.

Mechanism

High pressure is created in what is called the focal point, which is where the treatment takes place. This point is directed at the injury area. The high pressure is the "shock" in shock wave therapy. The shock is repeatedly applied to the injury area and will break down scar tissue and calcifications in the area. This tissue is in most chronic cases unable to repair itself. As the shock wave breaks down the tissue, the body starts building up new tissue, in the order it originally was intended. It has also been shown that new blood vessels grow into the new tissue, helping the healing. In other words: the shock wave stimulates healing of tissue, which has not been successful in the sponta- neous healing process, which is supposed to take place in the body.

TENNIS MAGAZINE SUGGESTS FOUR ASANAS FOR TENNIS PLAYERS:

1. VRIKSHASANA



To strengthen the legs, open the hips, and improve balance and coordination.

2. TRIKONASANA



To strengthen and stretch the hamstrings, open the chest, and promote balance.

3. VIRABHADRASANA II



To strengthen quads, calves, and Achilles tendons; expand range of motion; and teach you to move from the hips.

4. ARDHA MATSYENDRANSANA

ARDHA MATSYENDRASANA
HALF SPINAL TWIST POSE



To limber hips and shoulder joints and tone and stretch the lumbar spine.

Yoga Journal noted that yoga silences the "inner chatter" and helps tennis players strengthen injury-prone joints. It highlighted these *Asanas* for court-side yogis;

1. Virabhadrasana II to develop strength and balance.
2. Utkatasana to create space throughout the ankle and knee joint; lengthen the Achilles' tendons, calves, and spinal column; and firm the abdomen.
3. Setu-bandha sarvangasana to develop a supple back and torso.
4. Adho-mukha vrikshasana to build mental and physical focus and agility.

CONCLUSION

RELIEF OF TENNIS ELBOW

The best way to relieve tennis elbow is to stop doing anything that irritates your arm (*Nidan-parivarjana*) - a simple step for the weekend tennis player, but not as easy for the manual laborer, office worker, or professional athlete.

The most effective conventional and alternative treatments for tennis elbow have the same basic premise.

Rest the arm until the pain disappears, then massage to relieve stress and tension in the muscles, and exercise to strengthen the area and re-injury.

If it is necessary to go back to whatever caused the problem in the first place, be sure to warm up the arm for at least 5 to 10 minutes with gentle stretching and movement before starting any activity.

Frequent breaks should be taken.

Another attractive option for many sufferers, especially those who prefer to not ingest medication orally, is the application of an appropriate and effective topical anti-inflammatory like *lepam* oil, *Muriveena tailm* etc.

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