Tennis Elbow

Tennis elbow is the common term for a painful elbow disorder.

The technical name for tennis elbow is “lateral epicondylitis”. This term refers to an inflammation that is occurring near a small point or projection of the upper arm bone (humerus) just above the elbow joint on the outer side of the arm. However, pain can also occur in the forearm and wrist.

The pain from tennis elbow comes mainly from injured or damaged tendons near the elbow. Tendons are strong bands of tissue that connect muscles to bones. When repeatedly stressed or overused, tendons can become inflamed and degenerate. This results in a painful condition called tendinopathy, the medical term for disorder of a tendon. Tennis elbow is simply a specific type of tendinopathy that occurs in a particular part of the elbow.

Damaged tendons can occur on either side of the elbow. When it happens on the outside of the elbow, which is most common, it is called tennis elbow. When it happens on the inside, it is called “medial epicondylitis” or “golfer’s elbow.”

How does tennis elbow occur?

The development of tennis elbow is associated with repeated contraction of the forearm muscles. These muscles control hand and wrist movements. They are attached to tendons that connect them to only two small points of bone just above the elbow, one on the outer side, the other on the inner side.

Muscles connected to the outer side of the elbow (extensors) are responsible for:

- straightening the fingers,
- bending the wrist upwards, and
- rolling the forearm into a palms-up position.

Muscles connected to the inner side of the elbow (flexors) are responsible for:

- bending the fingers,
- bending the wrist downwards, and
- rolling the forearm into a palms-down position.

There are weak points in the way tendons connect these muscles to the bone above

the elbow. The points where the tendons attach are sometimes too small to handle the strong force of the powerful muscles. These tendons can get overloaded when the hand and forearm are used in strong, jerky movements such as gripping, lifting, or throwing.

Tendons do not stretch when pulled. They are rope-like structures made of strong, smooth, shiny fibres. Strong forces or sudden impacts, however, can eventually tear their fibers apart in much the same way a rope becomes frayed. This type of injury is called a strain, and usually results in formation of scar tissue. Over time, strained tendons become thickened, bumpy, and irregular. Without rest and time for the tissue to heal, strained tendons can become permanently weakened.

What are the risk factors for tennis elbow?

The development of tennis elbow often relates to the way that workers carry out activities such as gripping, twisting, reaching, and moving. These activities can become hazardous when they are done:

- in fixed or awkward position,
- with constant repetition,
- with excessive force, and
- without allowing the body to recover from the wear and tear.

Tennis elbow is associated with jobs that require repeated or forceful movements of the fingers, wrist, and forearm. It can develop because of too much force at once or small amounts of force for too long a period.

Specific movements associated with the development of tennis elbow include:

- simultaneous rotation of the forearm and bending of the wrist,
- stressful gripping of an object in combination with inward or outward movement of the forearm,
- jerky, throwing motions,
- movements to hit objects with the hand.

The movements in the first two activities mentioned above (rotation, bending, and gripping) are particularly hazardous when done while the arms are extended forward and/or sideways away from the body (torso).

Common arm motions that are associated with tennis elbow include using plumbing tools, painting, driving screws, cutting food (especially meat), and repetitive computer mouse use.

What are the signs and symptoms of tennis elbow?

Tennis elbow can cause extreme tenderness on the outer side of the elbow. This tenderness becomes painful and the pain may radiate outwards when the wrist and elbow are moved in certain ways. These include:

- bending the wrist while straightening the elbow,
- trying to straighten the wrist against resistance while straightening the elbow,
- trying to bend the hand back against resistance while straightening the elbow, and

- trying to straighten the fingers against resistance.

In a medical examination, pain experienced in any three of these movements can indicate the possibility of tennis elbow. Usually there is no outward sign of redness or swelling. Most often tennis elbow affects only one arm, usually the arm that does most at work.

Tennis elbow can appear in many different ways. Some people get symptoms gradually after doing the same type of work for several years. Others get it suddenly, soon after they start doing a new type of work. Sometimes it can develop immediately following a single severe muscle exertion or after an elbow becomes injured. In other cases, tennis elbow occurs for no obvious reason.

What is the treatment for tennis elbow?

Tennis elbow requires medical attention as soon as the symptoms appear. Early attention usually prevents the development of a serious disorder. The most important steps in treatment include:

- rest from the activities that cause elbow pain,
- correction of incorrect postures and motions,
- possible use of ice packs or medication such as oral or topical non-steroidal anti-inflammatory drugs (NSAIDS) to reduce the inflammation or pain,
- exercises to stretch and strengthen the muscles,
- physiotherapy to assess the healing process, restore the elbow to its highest level of function, and assist the worker in returning to work.

Rest from the activities that cause elbow pain is the most important treatment for tennis elbow. This kind of disorder is often called “self-limiting” because it eventually disappears when people change or avoid activities that cause elbow pain. Watchful waiting rather than active treatment and intervention is fairly effective in pain reduction in some patients. Physicians sometimes give injections to reduce inflammation and speed healing. This treatment usually works, but it cannot be used repeatedly. Elbow bracing and support pads may also be worn for short term pain relief.

If symptoms have not improved after six to twelve months, surgery might be a solution. Surgical procedures for tennis elbows involve removal of the damaged tissues.

How can tennis elbow be prevented?

Finding out what workplace activity was associated with a specific case of tennis elbow is important. Damage to the arms and elbows can become chronic if the activity causing the condition is not changed or discontinued.

Prevention of tennis elbow requires:

- general awareness of the disorder and how it can relate to activities at work, and
- prompt action to deal with the risk factors and eliminate them before the disorder develops.

Tasks associated with tennis elbow should be identified and modified to reduce

the risk of serious injury. Of greatest concern is the use of fingers, wrists, and forearms in repetitive work involving forceful movement, awkward postures, and lack of rest. Avoid tasks that place excessive force, stress, or strain on muscles of the forearm.

However, keeping in mind that tennis elbow is just one of several different disorders caused by repetitive work is important. Prevention programs cannot be effective if they deal with only one part of the arm and neglect the hands, wrists, shoulders, neck or back. Effective prevention must deal with all disorders caused by repetitive work and the inappropriate demands on muscles and tendons.

Proper job design is the best way to avoid repetitive patterns of work. Ways to avoid repetition include:

- use of machines to mechanize repetitive work,
- job rotation to enable workers to use different sets of muscles in their job,
- job enlargement to increase the variety of tasks that make up a job,
- job enrichment to provide more control and improved quality of working conditions, and
- teamwork to increase the variety of muscular work.

Other aspects of prevention include:

- design of the workplace to fit the worker,
- design of tools and equipment to decrease force needed for the job, and
- development of proper work practices based on suitable education and training.

For prevention of tennis elbow, having workstations arranged properly is important so that workers do not have to reach long distances constantly.

The choice of tools and placement of equipment can also help keep reaching distances to a minimum and limit the weight held or handled while reaching.

Proper work practices also include:

- working without bending the wrist,
- using smooth movements rather than jerky ones, and
- using work/rest schedules that allow workers time to change their position, rest working body parts, and relax their minds.

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