

# Prevalence of Acute Tennis Elbow Among College Students

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## ABSTRACT

**Background:** Acute tennis elbow can develop in college students due to repetitive arm motions such as typing, carrying heavy bags, or participating in sports.

**Introduction:** Tennis elbow is an overuse injury that causes damage to the tendon connecting the extensor muscles of the forearm. It is often the result of overuse of the forearm muscles and tendons, typically due to repetitive movements. College tasks that require extensive computer use or repetitive motions can strain the tendons, leading to tennis elbow. Students may be more susceptible to this condition due to their study habits, participation in sports, or other activities involving repetitive arm motions. Acute tennis elbow in students can result from various factors, including repetitive movements, poor ergonomics, increased technology use, and sports participation.

**Methodology:** A survey was conducted on 200 college students aged between 18 and 25 using the Patient-Rated Tennis Elbow Evaluation (PRTEE) scale. The participants were selected based on inclusion criteria and were asked to complete questionnaires through a Google Form.

**Results:** The data analysis was carried out using Microsoft Excel 2021. Out of the 200 college students surveyed, the percentage of self-reported acute tennis elbow in the study population was 6% severe, 20.5% moderate, and 73.5% mild.

**Conclusion:** Acute tennis elbow affects 6% of college students.

**Keywords:** Acute tennis elbow, college students

## INTRODUCTION

Lateral epicondylitis, commonly known as tennis elbow, is a condition characterized by pain and tenderness on the outer part of the elbow. It results from overuse or strain of the muscles and tendons that attach to the lateral epicondyle, a bony prominence on the outer elbow. The pain is often due to micro-tears in the tendons, particularly in the extensor muscles of the forearm, and can be exacerbated by repetitive activities involving gripping or wrist extension.

In tennis elbow, the primary muscles involved are the extensor muscles of the forearm. Specifically, the extensor carpi radialis brevis (ECRB) is most commonly affected. This muscle helps extend and stabilize the wrist. Overuse or repetitive strain can lead to micro-tears in the tendons where these muscles attach to the lateral epicondyle of the elbow, causing pain and inflammation. Other extensor muscles that can be involved include the extensor carpi radialis longus and extensor digitorum.[1]

Tennis elbow can occur in individuals of any age, but it is most common in adults between the ages of 30 and 50. The condition often affects people who perform repetitive motions with their arms and wrists, such as athletes, manual laborers, or

those with jobs involving extensive computer use. Although it's called "tennis elbow," the condition isn't limited to tennis players and can be seen in anyone who engages in repetitive activities that strain the elbow.[2,3]

Tennis elbow affects both men and women, but research suggests it is slightly more common in men. The difference in prevalence between genders is generally modest and may be influenced by occupational or recreational activities that involve repetitive arm use.[3]

Tennis elbow can affect college students, particularly those who engage in activities that involve repetitive use of the arms and wrists:

1. **Extended Computer Use:** Students who spend long hours typing or using a mouse might develop tennis elbow due to repetitive stress on the forearm muscles.
2. **Sports and Physical Activities:** College students involved in sports, especially those that require repetitive arm movements like tennis or basketball, are at risk.
3. **Weight Training:** Those who lift weights, particularly with improper form or excessive loads, might strain their elbow tendons.

Preventive measures, such as proper ergonomics, regular breaks, and appropriate techniques in sports and exercises, can help reduce the risk of developing tennis elbow.

College students might be at risk for tennis elbow due to several factors:

1. **Extended Computer Use:** Prolonged periods of typing and using a mouse can lead to repetitive strain on the forearm muscles and tendons.
2. **Repetitive Physical Activities:** Participation in sports or physical activities, such as tennis or weightlifting, can cause strain on the elbow.
3. **Poor Ergonomics:** Poor posture or incorrect workstation setup while

studying or working can contribute to repetitive stress injuries.

4. **Stress and Lifestyle:** High-stress levels and irregular physical activity patterns can exacerbate the risk of overuse injuries.

By paying attention to ergonomics, practicing proper technique in physical activities, and taking regular breaks, students can reduce their risk of developing tennis elbow.[4,5]

The prevalence of acute tennis elbow among college students is not extensively documented in research. However, the risk factors associated with this population, such as prolonged computer use, repetitive physical activities, and occasional sports participation, suggest that it can occur, though it might not be as common as in athletes or workers with high repetitive strain. Given the variability in activity levels and individual habits, the actual prevalence can vary. To get precise statistics, more targeted studies would be needed to assess the prevalence and risk factors specifically within college student populations.[7'8]

The aim of studying acute tennis elbow among college students could include several key objectives:

1. **Determine Prevalence:** Assess how common acute tennis elbow is within the college student population.
2. **Identify Risk Factors:** Investigate the activities, behaviors, and ergonomics that contribute to the development of tennis elbow in this group.
3. **Evaluate Impact:** Understand how acute tennis elbow affects students' academic performance, physical activity levels, and overall quality of life.
4. **Develop Prevention Strategies:** Propose measures to reduce the incidence of tennis elbow through better ergonomics, proper techniques in sports and activities, and educational interventions.
5. **Inform Treatment Approaches:** Provide data that can help in designing effective treatment and rehabilitation programs tailored for college students.

These objectives can help improve awareness, prevention, and management of tennis elbow among college students.[8]

## **MATERIALS & METHODS**

A cross-sectional observational study was conducted among college students in Ahmedabad, Gujarat, India. A sum of 200 responses were acquired using the purposeful sampling approach, with subjects having an age group between 18 and 25 years old and being included based on inclusion and exclusion criteria. Approval from the institutional ethical panel was attained. Data was collected via an online questionnaire created with Google Forms, and analysis was carried out using Microsoft Excel 2021. Data was collected over a one month period, from December 1 to December 31, 2023. PRTEE (patients rated tennis elbow evaluation) scale was conducted.

### **INCLUSION CRITERIA**

- Age group: 18-25 year
- Gender: both females and males
- Unilateral involvement
- Acute
- Pain intensity level between 3 to 6 cm on 10 point PRTEE scale

### **EXCLUSION CRITERIA**

- Patient having any history of upper limb trauma, surgery, acute infections, malignancy or any systemic disorder
- Chronic lateral epicondylitis
- Cervical spine or any other upper limb dysfunction
- Neurological disease
- Cardiovascular disease
- Osteoporosis

- Recent steroid infiltration ossification and calcification of the soft tissue

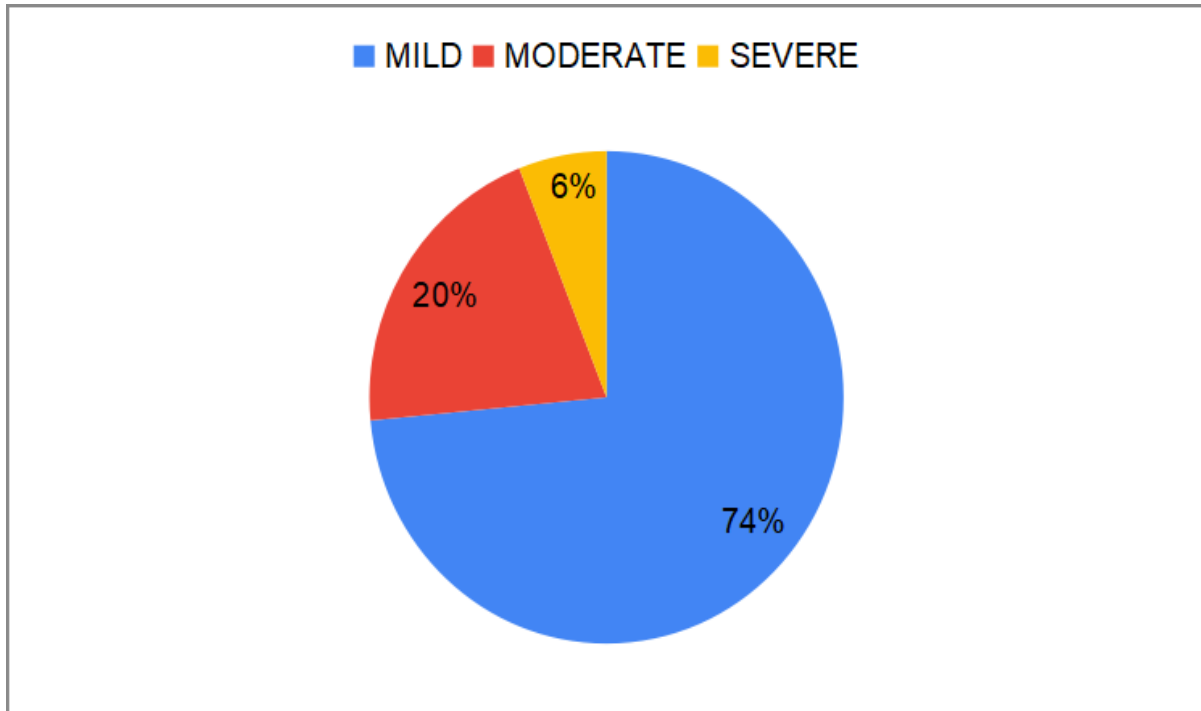
### **OUTCOME MEASURE:**

#### **PATIENTS RATED TENNIS ELBOW EVALUATION**

The PRTEE assesses the average pain and function of the affected arm during the preceding week. This time frame allows an accurate memory recall, while avoiding effects from acute fluctuations in symptoms. The questionnaire consists of two parts: part 1 deals with pain and part 2 deals with function. Each of the five items in part 1 is scored using an NRS, ranging from 0 (no pain) to 10 (worst pain imaginable). Part 2 is subdivided into Specific Activities (six items) and Usual Activities (four items). The 10 items of part 2 use a scale of 0 (no difficulty) to 10 (unable to perform an activity) to rate function. The total score is the combined score that rates pain and disability of equal importance. The pain score total (out of 50 points) and the functional subscale (60 points for specific activities, plus 40 points for usual activities to give a function subscale out of 100 points which are then divided by two to provide the remaining 50%) provide a total score, ranging from 0 (no pain and no functional impairment) to 100 (worst pain imaginable with a very significant functional deficit). The minimal obtainable score is 0 (best result); the maximal obtainable score is 100 points (worst result).[16]

### **RESULT**

The result was carried out with Microsoft Excel 2021. There were 200 subjects in the sample size. The mean age was estimated to be 21.75 year. The research population's self reported PRTEE was 24.17.



## DISCUSSION

Total 200 students were participated in this study with age group between 18-25 years old. 200 of them were included in the study based on the inclusion and exclusion criteria. we assess PRTEE scale. These are suggestive of early warnings signs to tennis elbow.

Tennis elbow is thought to result from overuse of the extensor carpi radialis brevis (ECRB) muscle by repetitive micro trauma resulting in primary tendinosis of the ECRB, with or without involvement of the extensor digitorum communis (EDC).

College students may be more susceptible to overuse ailments like tennis elbow because they write for extended periods of time and put more strain on their elbows and wrists when writing. The typical positions we adopt for writing are radial deviation and elbow flexion; nonetheless, there must be variances for each individual.[10]

The main complication of lateral epicondylalgia is a loss of grip strength, mostly brought on by pain and its impact on motor abilities. Patients with tennis elbow, according to Schmidt et al., seldom challenge their maximal grip and attempt to prevent pain. Thus, their capacity to function without pain may be used to gauge

their functional ability. Ankle pain and inactivity play a significant part in deteriorating agonist and antagonist muscle function, which lowers the implicated arm's total muscle performance. [11,12,13]

If any level of palpation was felt when palpating the lateral epicondyle or the surrounding tissue up to 4 cm away from the epicondyle, this was regarded as positive direct tenderness. sensitivity. When an exacerbation of pain was felt in the designated area during the examination of indirect tenderness, which involved resisting dorsal flexion of the wrist with the elbow stretched, the examination was deemed positive. Although there are indications that lateral epicondylitis is not common among manual laborers and is not clearly associated with any particular work activity, the cause and form of the condition are still up for debate. Additionally, we advise carrying out extensive research on students utilizing EMG and ultrasonographic data to support tennis elbow. The non-classification of athletic and sedentary active pupils is one of the study's limitations.

The muscles in our hands and fingers have to exert different amounts of force to perform various tasks on portable devices. People tend to spend more time on tasks that

involve simply holding the device, rather than tasks that require continuous typing, clicking, and dragging on the screen. Repetitive motions pose the greatest risk to our muscles.[14]

Uncertainty surrounds the pathophysiology of this condition. It is thought that micro traumas are caused by muscles that are overworked and under continual stress. This could be the basis for the onset of diseases at the common extensor tendon's origin. The extensor carpi radialis brevis, a deep muscle, inserts on the base of the third metacarpal bone after originating on the anterior aspect of the lateral epicondyle. Its main purpose is wrist abduction and extension due to its significant contact with the capitulum's lateral edge. The anatomical location of this muscle may significantly contribute to the risk of injury. During elbow motion, the muscle that lies deepest in the forearm extensor compartment scrapes on the bony surface. [14]

## CONCLUSION

According to a recent study conducted on college students, the prevalence of tennis elbow was found to be rare. The study indicated that students experienced mild symptoms of tennis elbow. It is recommended that students understand the benign nature of the illness, get sufficient rest, and use ergonomics to reduce repetitive stress on the muscles.

### *Declaration by Authors*

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**Conflict of Interest:** The authors declare no conflict of interest.

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