

# **Treatment of Lateral Epicondylitis with Platelet-Rich Plasma versus Glucocorticoid**

## **Thesis**

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**By**

**Amal Sayed Mohamed Abdelazeem**

M.B.B.CH.

Ain Shams University

**Under Supervision of**

**Prof. Dr. Mahmoud El Tayeb Nasser**

Professor of Physical Medicine, Rheumatology and Rehabilitation  
Faculty of Medicine – Ain Shams University

**Prof. Dr. Ahmed Zaki El Yasaki**

Professor of Physical Medicine, Rheumatology and Rehabilitation  
Faculty of Medicine – Ain Shams University

**Dr. Reem Mohamed Ezz El Din El Mallah**

Assistant professor of Physical Medicine, Rheumatology and  
Rehabilitation  
Faculty of Medicine – Ain Shams University

**Faculty of Medicine  
Ain Shams University**

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*Candidate*

 *Amal Sayed Mohamed Abdelazeem*





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## List of Abbreviations

Abbrev.	Full term
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<b>ABI</b>	: Autologus Blood Injection
<b>ACL</b>	: Anterior Cruciate Ligament
<b>ANA</b>	: Antinuclear Antibody
<b>CBC</b>	: Complete Blood Count
<b>CEO</b>	: Common Extensor Origin
<b>CGRP</b>	: Calcitonine Gene Related Peptide
<b>CS</b>	: Corticosteroids
<b>DC</b>	: Direct Current
<b>ECRB</b>	: Extensor Carpi Radialis Brevis
<b>EGF</b>	: Epidermal Growth Factors
<b>ESR</b>	: Erythrocyte Sedimentation Rate
<b>ESWT</b>	: Extracorporeal Shock Wave Therapy
<b>FGF</b>	: Fibroblast Growth Factor
<b>HA</b>	: Hyaluronic Acid
<b>HGF</b>	: Hepatocyte Growth Factor
<b>IGF</b>	: Insulin-like Growth Factor
<b>IL 8</b>	: Interleukin 8
<b>KGF</b>	: Keratinocyte Growth Factor
<b>LLLT</b>	: Low Level LASER Therapy
<b>LE</b>	:Lateral Epicondylitis
<b>MRI</b>	: Magnetic Resonance Image

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## List of Abbreviations (Cont.)

Abbrev.	Full term
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<b>MWM</b>	: Mulligan's mobilization With Movement
<b>NSAIDS</b>	: Non-Steroidal Anti- Inflammatory Drugs
<b>PDGF</b>	: Platelet Derived Growth Factor
<b>PGE2</b>	: Prostaglandin E2
<b>PLRP</b>	: Platelet Leukocyte Rich Plasma
<b>PRGF</b>	: Plasma Rich in Growth Factors
<b>PRP</b>	: Platelet Rich Plasma
<b>PRTEE</b>	: Patient Rated Tennis Elbow Evaluation
<b>RF</b>	: Rheumatoid Factor
<b>SP</b>	: Substance P
<b>TE</b>	: Tennis elbow
<b>TGFB</b>	: Transforming Growth Factor Beta
<b>TH</b>	: Tyrosine Hydroxylase
<b>US</b>	: Ultrasound
<b>VAS</b>	: Visual Analogue Scale
<b>VEGF</b>	: Vascular Endothelial Growth Factor

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# Introduction

**L**ateral epicondylitis of the elbow is a disease that mainly affects individuals who make repetitive movements with their wrists and/or fingers (*Mishra and Pavelko, 2006*). Also the term “lateral epicondylitis of the elbow” may be inappropriate, given that this pathological condition does not involve a truly inflammatory process, but rather, a degenerative process (*Fredberg and Pedersen, 2008*).

The name “tennis elbow” does not correspond to the reality. Although around 40–50% of tennis players present this disease, especially those who have been practicing this sport for long times, this group accounts for only 5% of the total number of individuals affected (*Palacio et al., 2016*).

This injury predominantly involves the origin of the short radial extensor muscle of the carpus (Extensor carpi radialis brevis), in which microtears develop as a result of excessive and abnormal use, with formation of immature repair tissue (*Palacio et al., 2016*).

The symptoms of lateral epicondylitis of the elbow are generally self-limited and may vary in duration from a few weeks to months. However, in some cases, there is no spontaneous resolution of the symptoms, and this invariably leads to a chronic condition (*Thanasas et al., 2011*).

Lateral epicondylitis of the elbow is associated with long periods off work, which gives rise to high social security costs and substantial loss of professional productivity (*Buchbinder and Richards, 2010*).

Ultrasound (US) examination has been shown to be an easy accessible, cost-effective, and risk-free method to examine tendons. The most common finding in a patient with lateral epicondylitis is hypoechoic regions and diffuse heterogeneity, calcifications and bone spurs can be seen. (*Paavola et al., 1998*).

The treatment options range from relative rest in association with immobilization, physiotherapy, application of botulinum toxin, acupuncture, shockwave therapy, use of oral non-steroidal anti-inflammatory drugs, steroid injections and, most recently, use of platelet-rich plasma. Surgical procedures are only recommended when the symptoms last for more than six months and/or if other non-surgical treatment options have failed (*Strujis et al., 2006*).

Local steroid injection has been proven to provide consistent and predictable short term pain relief (*Tonks et al., 2007*).

Platelet rich plasma (PRP) is a concentrate of platelets derived from the patient's own blood. Platelets in PRP contain growth factors and build up reparative processes. The action of PRP therapy in chronic tendinopathies is varied and

hypothesized to include angiogenesis, increase in growth factor expression and cell proliferation, increase the recruitment of repair cells and tensile strength (*Raeissadat et al., 2014*).

Lateral epicondylitis may be characterized by complex changes in the tendon in addition to an inflammatory process. Therefore, PRP owing to its high content of various growth factors may be more efficacious as a healing agent. However, studies on lateral epicondylitis with PRP treatment have yielded inconclusive results (*Raeissadat et al., 2014*).