

# “THE EFFECT OF USING BLOOD VESICLE-RICH PLASMA & SPECIAL REHABILITATION TRAINING ON ACCELERATING RECOVERY FROM TENNIS ELBOW INJURIES”

**Mohamed Fadel Elwan**

*College of Physical Education & Sport Sciences, Diyala University*

## **Abstract:**

The tennis elbow injury was the center of the researcher's interest as he decided to exert his utmost effort in order to find modern therapeutic means (medical and rehabilitation training) to reach complete recovery stage from this injury. In his study, the researcher aims to define the effect of using blood vesicle-rich plasma on accelerating recovery from tennis elbow injury. In addition, the study aims to define the effect of special rehabilitation training after using blood vesicle-rich plasma on accelerating recovery from tennis elbow injury. To apply this study, the researcher selected two athletes injured with partial fracture in the tennis elbow (musculus extensor carpi radialis) who have similar injuries to overcome differences and to ensure homogeneity among sample members. The researcher used blood plasma and training as a basis for treatment and he found that blood plasma used in the form of local injection contributed to accelerate recovery of injured players and quick return to normal posture. In addition, the study found selective treatment of certain muscles or tendons to contribute to guide therapeutic work to specific points.

**Keywords:** blood plasma, blood vesicles, rehabilitation training, tennis elbow injuries.

## 1. INTRODUCTION:

With the development of science, diagnostic and therapeutic techniques at present, more awareness was created to use these techniques to their maximum limits in order to get maximum benefits. Each student utilized these techniques in his/her work field according to their specialization till maximum limits in order to benefit from scientific development and support development cycle towards advancing consistently. This depends on scientific studied method combined with researchers' creativity and passion to solve problems and shorten time in order to reach their goals and achieve their research and scientific objectives as quick as possible. These scientific researches resulted in development in all aspects of life. Therefore, the significance of the study lies in defining the effect of using modern medical techniques combined with special rehabilitation training in order to accelerate time reaching recovery from tennis elbow injury.

### **Problem of the Study**

Sport injuries are among the worst fears of athletes and they are always described as the ghost which chases the athletes along their sport careers, especially some common injuries for a lot of athletes that stand as a stumbling block in their sport development. It is not necessary to mention many of prominent names in sport whose sporting careers ended with injuries

From previous illustration and many others, the researcher became motivated to highlight one of the common injuries and find solutions to mitigate the severity of this injury, shorten recovery time and then rehabilitate the injured area to return to sport activity with prevention from repeating this injury as a result of incomplete recovery. The tennis elbow injury was the main center of the researcher's attention and he decided to exert his utmost effort in order to find modern therapeutic means (medical and rehabilitation training) to reach complete recovery stage from this injury.

### **Objectives of the Study:**

- 1- Define the effect of using blood vesicle-rich plasma on accelerating recovery from tennis elbow injury.
- 2- Define the effect of special rehabilitation training after using blood vesicle-rich plasma on accelerating recovery from tennis elbow injury.

### **Hypotheses of the Study:**

- 1- There are statistically significant hypotheses towards accelerating recovery from tennis elbow injury after injection of blood vesicle-rich plasma at the injured place.
- 2- Physical training has a statistically significant effect towards accelerating recovery from tennis elbow injury after injection of blood vesicle-rich plasma at the injured place.

## 2. METHODOLOGY:

The researcher used the empirical method to solve problem of the study.

### Sample of the Study:

The researcher selected two athletes injured with partial fracture in the tennis elbow (musculus extensor carpi radialis) who have similar injuries to overcome differences and to ensure homogeneity among sample members.

### Procedures of the Study:

Procedures of the study depended on two main factors and one secondary factor:

#### 1- Diagnosis & Medical Treatment:

With the help of a specialized medical crew, the researcher performed examination using ultrasound waves (Sonar). After a week, the researcher performed it after ensuring that there is no swelling, side effects or accompanying injuries such as skin injuries, a fracture of a part of elbow bones or bone fragments at the injured area.

10 cc were extracted from the blood of the injured person himself and then put them in a special tube. Blood was put in the centrifugal device for (5) minutes to separate blood plasma from red blood cells and then blood plasma was extracted and red blood cells were left in the tube. Next, the injured person stands on a seat and the arm is put bended on a table in a convenient way for the injured person. After that, the injured area should be sterilized with accurate detection of the injured place using the sonar device (examination device using ultrasound waves) and blood vesicle-rich plasma at the injured area using a syringe. After injection, the injured area was sterilized again to avoid any pollution that may lead to future side effects.

It was asserted to make the injured person at the sitting position and its arm by the bend posture on the table for (15) minutes. This process is repeated after one or two months since the date of performing the first injection process.

#### 2- Prevention (Secondary) Part

The tester uses a special slap and puts it at the wrist. This slap contains a hard part at the back part of the wrist. This hard part prevents wrist movement backwards as the extensor carpi radialis brevis muscle related to the tennis elbow is the muscle responsible for wrist joint backward movement. This slap prevents any movement that may lead to late healing and allows the injured to perform the rest of moves that are not related to this muscle or the injured tendon. This slap is used at the first month of the injury in a continuous manner for 24 hours and partly at th second month not less than 12 hours daily.

#### 3- Rehabilitation Training

Rehabilitation training starts four weeks after the date of performing injection of blood vesicle-rich plasma. This training should be very low in intensity, repetition and they aim to reduce pain. After that, average intensity training begins and according to the injured person's ability to perform them considering gradual loads (intensity and repetition) and they are divided into:

- 1- Flexibility Training: training of the motor rate of the elbow and wrist.
- 2- Strength Training:
  - A. Isometric Training for extending and bending muscles of the elbow and wrist.
  - B. Isotonic Training for extending and bending muscles of the elbow joint.
  - C. Muscle Strengthening Training at palm extension and contraction.

Table (1): the size of partial fracture of the extensor carpi radialis brevis muscle measured in (mm) and the amount of feeling pain during gradual loads:

	Using Blood Vesicle-Rich Plasma & Rehabilitation Training		Un-using Blood Vesicle-Rich Plasma & Rehabilitation Training	
	Tendon fracture size (mm)	Feeling pain	Tendon fracture size (mm)	Feeling pain

Week	3 mm	Intense	3 mm	Intense
Month	2 mm	Average	2.7 mm	Intense
Two months	5.8 mm	Low	2.3 mm	Average
Three month	Healing	No pain	1.8 mm	Average

Through table (1) showing the size of partial fracture at the extensor carpi radialis brevis muscle (tennis elbow injury), it can be noticed that there is a clear development in the muscle’s tendon healing. After fracture length was 3 mm one week after the injury, and as a result of injecting the injured area with blood vesicle-rich plasma, its length became 2mm one month after the date of the first injection process. The rate of feeling pain also was low from very intense to average one, while the size of fracture of the muscle’s tendon with the sample not injected with blood vesicle-rich plasma was 2.7 mm one month after initial diagnosis as fracture size was 3 mm with continuous feeling great pain at the injured area. This asserts the effectiveness of blood vesicle-rich plasma and its ability to accelerate healing the muscle’s tendon (1).

After re-examination and diagnosis of the injured muscle’s tendon two months after the initial examination date, as a result of using rehabilitation training in addition to injecting the injured area with blood vesicle-rich plasma once again, the researcher noticed that muscle tendon’s healing rate increased more than previously from 2 to 5.8 mm. He also noticed that the rate of feeling pain was also low from average to lower, while the rate of healing for the muscle’s tendon of the sample not injected with blood vesicle-rich plasma and not subject to rehabilitation training much less. After fracture size was 2.7 mm one month after injury, it became 2.3 mm two months from injury and feeling pain was reduced from very intense to average one. This also asserts the role of rehabilitation training on accelerating healing in addition to blood vesicle-rich plasma (2). Moreover, table (1) also shows that in three months after initial injection of the muscle’s tendon of with blood vesicle-rich plasma and continuous rehabilitation training, the injured area of the sample was re-examined and it was found that there is a complete healing of the tendon of the extensor carpi radialis brevis muscle (tennis elbow) and no pain at the injured area, while there was a 1.8 mm fracture at the muscle’s tendon with average pain level at the injured area of the sample not injected with blood vesicle-rich plasma and not subject to rehabilitation training.

Thus, it became greatly evident that blood vesicle-rich plasma and rehabilitation training play a role in rehabilitation of sport injuries and great shortening of time in order to restore complete recovery from muscular tendon injuries which agrees with the study of (Bahaa Eldin Salama, 2005: 23). He says that it is necessary to use modern techniques in recovery and prevention from injury repetition such as using local blood plasma injection as it has rapid and good influence in recovery.

### 3. CONCLUSIONS:

- Blood plasma used as local injection contributed to accelerate recovery for the injured persons with quick return to normal position.
- The study reached a selective treatment to specific muscles or tendons and this, in turn, contributes to guide treatment work to a specific point.

### 4. RECOMMENDATIONS:

- 1- Authorizing results of the study in recovery of elbow joint injuries.
- 2- Applying local plasma injection on other injuries such as the knee joint.
- 3- Applying the study on a sample of injured females with similar cases with the possibility to compare the effect among males and females.

### 5. REFERENCES:

- 1- Bahaa Eldin Salama. (2005): “Blood Lactates”, Al Maaref Press.
- 2- Abo Elela. (2003): “Sport Training Physiology”, Cairo, Nasr Press.
- 3- International Journal of Clinical and Experimental Hypnosis, uk.2001