

## Low level laser therapy for sports injuries

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**Background and aims:** Our hospital has used LLLT in the treatment of athletes since 1990. We had a good result about LLLT for sports injuries. However, few articles have attempted to evaluate the efficacy of LLLT for sports injuries. The aims of this study was to evaluate the efficacy of LLLT for sports injuries.

**Materials (Subjects) and Methods:** Forty one patients underwent LLLT in our hospital. These patients included 22 men and 19 women with an average age of 38.9 years old. Patients were irradiated by diode laser at points of pain and/or acupuncture points. Patients underwent LLLT a maximum treatment of 10 times (mean 4.1 times). We evaluated the efficacy of LLLT using a Pain relief score (PRS). A score of 2 to 5 after treatment was regarded as very good, 6 to 8 as good, and 9 to 10 as poor. A PRS score of less than 5 was regarded as effective.

**Results:** The rate of effectiveness (PRS of 5 or less) after LLLT was 65.9% (27/41 patients).

**Discussion:** In this study, the resulting rate of effectiveness was 65.9% for all sports injuries. However, we have a high rate of effectiveness for Jumper's knee, tennis elbow and Achilles tendinitis and cases that were irradiated laser by a physician.

**Conclusions:** LLLT is an effective treatment for sports injuries, particularly jumper's knee, tennis elbow and Achilles tendinitis.

**Key words:** Low level laser therapy (LLLT) · Sports injuries

### Introduction

It is not easy to control pain caused by overuse injuries what athletes have during sports activities. Because, athletes are not able to take enough rest for treatment caused by continued training.

Low Level Laser Therapy (LLLT) has been used for sports injuries and conditioning for many years<sup>1,2</sup>. Our hospital has used LLLT in the treatment of athletes since 1990. When LLLT was first started at our hospital, a diode laser with an output of 150 milliwatts (mW). Next, the machine of a diode laser with an output of 1 watt (W). At the beginning, we used a diode laser with an output of between 150 mW and 1 W. To our knowledge, efficacious sports injuries indicating LLLT are bursitis and inflammation of the tendon sheath, for example lateral and medial epicondylitis of the

humerus, patellar tendinitis, pes anserinus bursitis, plantar fasciitis, Achilles peritendonitis, etc. The usual output level in recent years has risen to 10 W from 2006. We feel that 10 W LLLT is effective for treatment of sports injuries better than 150 mW and 1 W LLLT.

The advantages of LLLT for athletes are: noninvasive procedure, fewer complications, no complications for athletes conscious of drug testing, and simple administration. As described above, we believe 10 W LLLT is a useful tool for sports injuries. However, few articles have attempted to evaluate the efficacy of 10 W LLLT for sports injuries.

The purpose of this study was to evaluate the efficacy of LLLT for sports injuries.

### Materials and methods

#### Patients

One hundred and twenty four patients underwent LLLT

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