

Thesis Title	The Efficacy and Safety of Picosecond Laser Using Combination of 1064 and 532 nm for Axillary Hyperpigmentation
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ABSTRACT

Hyperpigmentation of the skin is a common dermatological condition in which the color of the skin generally becomes darker. These changes in skin coloration can be a result of various internal and external factors including hormonal changes, inflammation, injury, acne, eczema, certain medication, UV exposure, etc. Skin pigmentation and coloration are governed by the biological processes involving the production of the skin pigment called melanin produced by melanocytes in various layers of skin. Thus, alterations in melanocyte production or distribution of melanin result in skin hyperpigmentation disorders

Axillary hyperpigmentation (AH) is a common condition in dark-skinned individuals that can cause cosmetic concerns, especially in Asian populations. In a study by James et al, histopathological analysis has shown that the most common cause of AH is post inflammatory hyperpigmentation (PIH), which in turn can result from several factors. Another study by Evan et al pointed out that axillary tissue differs from other body tissues. Axillary tissue constitutes extra hair follicles, extra sweat glands, extra sebaceous glands, and higher transepidermal water loss values that cause weaker skin barriers. Moreover, the axilla is a flexural area susceptible to

constant skin friction, chemical exposure, and frequent shaving, which can damage the skin tissue and cause irritation, causing PIH.

Lasers have been using for the treatments but need to use many times and not well-satisfied. Picosecond laser is the newest technology works on pigmentation and gave an effective result with lesser treatment sessions with less side effects. In this study, we sought to determine the clinical efficacy and safety of Picosecond laser using combination of 1,064 nm and 532 nm and follow up at 4, 8 and 16 weeks. To study efficacy and safety of Picosecond laser using combination of 1,064 nm and 532 nm. 22 participants with AH were enrolled in this clinical trial study. The participants were treated with Picosecond laser using combination of 1,064nm and 532 nm compare before and after treatment. Three blinded independent dermatologists assessed results using standardized photographs according to the Global Aesthetic Improvement Scale (GAIS) evaluated paired pre- and post-treatment (week 4, 8 and 16). Melanin index was measured before and after treatment (week 4, 8 and 16) using a Mexameter (MX18, Courage and Khazaka[®], Cologne, Germany). Participants also completed self-assessments using GAIS. Subjects rated their Subjective satisfactory scale at 4 weeks, 8 weeks and 16 weeks after treatment. Melanin index measured via a Mexameter was significantly improved after 3 sessions of treatment compare with baseline at before treatment ($p=0.001$) Physicians GAIS showed clinical improvement 16 weeks after treatment.

Keywords: Axillary Hyperpigmentation, PIH, Picosecond Laser, Transient Hyperpigmentation