

Thesis Title	The Effectiveness of <i>Lactobacillus</i> Serum for Reduction of Wrinkles
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ABSTRACT

Lactobacillus is one of the lactic acid bacteria (LAB) species, which are gram-positive organisms and are acid-tolerant, plant derived, and strictly fermentative. These *Lactobacillus* probiotics are included in foods or dietary supplements. Although the GI tract is the primary target of *Lactobacillus*, it is found that skin might also be benefitted by *Lactobacillus*. *Lactobacillus* played an essential role in enhancing human cell immunity and maintaining a healthy surface barrier. It balances the systemic immune status, including the release of regulatory cytokines, which play an important role in skin homeostasis. It also promotes the anti-oxidant function by quenching the free radical and protects oxidative stress damage to the cells. It also inhibits elastase and collagenase activity and maintains elastin and collagen to result in delaying skin-aging process. So, it can be used in treatment of fine wrinkles and maintenance of skin elasticity and moisturization.

The purpose of this study is to determine the effectiveness of *Lactobacillus* serum for reduction of wrinkles. This research is an experimental study with 16 participants. The study population is healthy male and female between the age of 30-55 years old. They need to apply the *Lactobacillus* serum on both sides of the face

twice a day for 12 weeks. Follow-up appointments will be at 4th, 8th and 12th week. Wrinkles assessment is done by Rao-Goldman 5 point visual score. Wrinkles and elasticity of the skin will be measured by VISIA® Complexion Analysis System and Cutometer® MPA 580. To measure the improvement, photographs taken with VISIA® Complexion Analysis System will be evaluated by 3 dermatologists. The participants were assessed by physician and questionnaires to detect any adverse effects and participants' satisfaction. This study may also be used as a reference data for future researches and studies.

Results: The outcome of the mean change of cutometer scores at 1cm above the eyebrow within the mid-pupillary line and 1cm below the eyelid withing the mid-pupillary line were significantly increased in different visit. Therefore, Lactobacillus can promote the elasticity of the skin. Wrinkle evaluation score by VISIA was also statistically increased and Rao-Goldman 5-point visual scale was significantly decreased in follow-up visits. This study also achieved high participants' satisfactory score and no adverse effect was detected.

Conclusion: The daily topical application of Lactobacillus serum is safe and effective for reduction of wrinkles. Therefore, Lactobacillus can be an alternative treatment for anti-aging and facial wrinkle reduction.

Keywords: Lactobacillus, Probiotics, Wrinkles, Elasticity, Cutometer