

ABSTRACT

**The Effect of Pre-Basic Level Satria Nusantara Breathing Exercise
Toward Immunity Modulation**

The purpose of the research was to disclose the effect of pre-basic level Satria Nusantara breathing exercise toward immunity modulation. This research was an experimental study. Using "randomized pretest-posttest control group design. Population consist of students of class II, M A Mu'Alimin Yogyakarta. Sample in each group consist of 15 persons. Analysis unit in this research was taken away from cubital veins. Comprised in this research which specified as the dependent variables were: rate of IL 6, IL 4, IL 2, cortisol, Beta Endorphin, and IgG. Training program was conducted 7 weeks, 3x /week, in submaximal intensity, 6 set/session. This program was executed for in the evening. Laboratory examination of the variables used ELISA method. Data analysis was carried out using descriptive and inferensial statistic with SPSS for windows. Followed with statistical multivariat and discriminant analysis.

The result showed that sample characteristic data after normality test had $p > 0.05$ indicating normality and homogeneity. Normality test and lavene's test to the dependent variables showed $p > 0.05$ indicating normality and homogeneity. Result of manova was $p < 0.000$, revealing difference between group (Wilk Lambda, $p < 0.05$). Strongest difference shown by beta endorphin, then immunoglobulin G and interleukin 6. Discriminator variable, that represented the representing function contribution of every discriminator to modulation immunity was beta endorphin, interleukin 6 and interleukin 4. Thereby beta endorphin had the strongest contribution to increase immunity compared to other variables.

Conclusion: descriptive research which reported by Suparto, (2001), that breathing exercise can increase physical fitness and immunity have been confirmed. Breathing exercise increases immunity modulation. Base on the different mean between treatment and control group can conclude was interleukin 6 was increase ($7,126 \pm 13,841$ and $-4,311 \pm 14,191$). Interleukin 4 was increase ($3,049 \pm 8,064$ and $2,917 \pm 4,533$). Interleukin 2 was not increase ($-2,412 \pm 17,418$ and $0,317 \pm 13,314$). Cortisol was decrease ($-4,092 \pm 5,280$ and $-2,167 \pm 8,437$). Beta endorphin increase ($3,907 \pm 0,158$ and $3,556 \pm 0,416$) and IgG was increase ($41,804 \pm 32,837$ and $-30,888 \pm 90,424$).

Cortisol shows no significant reduction, but at treatment and also control group there are an indication of degradation in rate cortisol. Immunity modulation can be enhance by breathing exercise stressor. Based on the concept of psychoneuroimmunology, there are three groups that have strong contribution. i.e, beta endorphin, interleukin 6 and interleukin 4. Breathing exercise represents stimuli at limbic-hypothalamus-pituitary-adrenal (LHPA) pathway that generates immunomodulator process on the basis of physiobiologic paradigm which psychoneuroimmunologic concept. Satria Nusantara breathing exercise increase immunity.

Keyword: Breathing Exercise, immunity, modulation.