TEMPORAL HEMISPHERIC DOMINANCE OF OMEGA-3: MEASUREMENT OF ALPHA AND BETA WAVE SIGNALS USING EEG

Thesis is presented in partial fulfilment for the award of the

Bachelor of Electrical Engineering (Hons)

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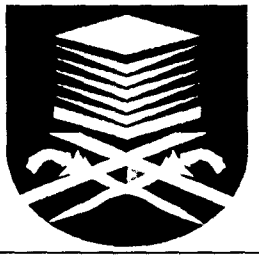

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ABSTRACT

This paper presents a study of the effect of consuming Omega-3 to the brainwave activity, concentrating on Alpha and Beta waves. The effects were studied through 12 volunteers consisting of 7 male and 5 female Electrical Engineering students. They were supplied with 900 mg of Omega-3 per day for 3 months and the results were concluded. Wireless EEG equipment via blue tooth was used to measure the brainwave signals in the right and left frontal area of the brain with the EEG data recorded from 12 samples. The artifacts of the EEG signals was removed by means of a program using MATLAB and the correlation between the left and the right brainwaves were achieved using paired-samples T test from SPSS. The outcomes, which are brain balancing index (BBI) and brain dominance shows the improvement of brain activity after Omega-3 consumption.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

In today's fast and changing world it has been a stressful and great challenge to the male and female engineering students. Students were under stress induced by a cognitive-conflict task [1]. This report is a research on the effect of consuming Omega-3 to the students' brain performance. In order to cope with the challenging life as a student the intake of Omega-3 was studied as daily supplement.

Dietary supplementation with DHA and EPA has proven beneficial for many of the known higher mental functions. It is believed to give balancing effect on the brain as well as make a person to be more efficient on their performances and health. It has been long known that Omega-3 contains these nutrients that are very important and good for healthy brain development and to ensure normal growth of nerve cells to function optimally.

Hence, this research project will study on the effect of Omega-3 on cognition and brain development of human being. The main objectives of this research are to investigate the brain hemispheric dominance of Omega-3 and to find out if there is any difference in brainwave pattern for both before and after the consumption of Omega-3 through the measurement of Alpha and Beta wave signals using EEG.