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INVESTIGATE THE EFFECT OF OMEGA 3 ON LIPID PROFILE

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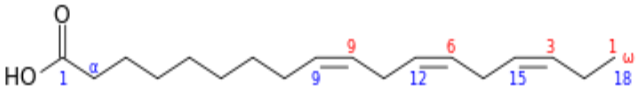
ABSTRACT
The present study was undertaken to investigate the effects of omega 3 on lipid profile. Omega 3 revealed a hopeful herbal supplement as therapy for Hyperlipidaemia and cardiovascular disease.

INTRODUCTION

Omega-3 Fatty Acids are a family of naturally occurring polyunsaturated fatty acids (PUFAs). Humans do not have the essential metabolic pathways to synthesize the precursor Fatty Acids (α-linolenic acid), which is vital for the production of the longer bioactive ω-3 Fatty Acids. Consequently, the long-chain Poly Unsaturate Fatty Acids must be gained from either plant sources or by direct intake of Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) from marine or industrial products [1]. EPA and DHA are mostly found in seafood, but fish do not actually produce these fatty acids [2]. The benefit of the high ω-3 Fatty Acid intake is attributed to their capacity to modulate cellular metabolic functions and gene expression [3]. These actions include the alteration of inflammatory processes in which eicosanoid participate, alterations of cellular membrane structure and functions induced by the incorporation of ω-3 Fatty Acids into membrane phospholipids, modulation of various signaling pathways involved in normal and pathological cell functions, as well as their direct effect on gene expression.



ALA
α-Linolenic acid

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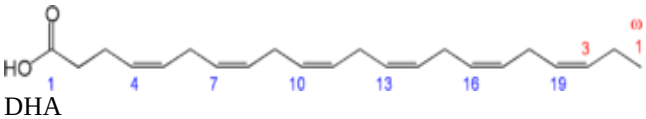
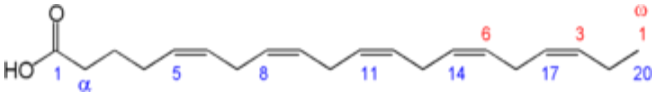


DHA
Docosahexaenoic acid



EPA
Eicosapentaenoic acid

MATERIALS AND METHODS

The study designed to investigate the effect of Omega 3 (30% EPA and 20% DHA) on the level of lipid profile so the subject used Omega 3 1000 mg supplied from Adrienganon Canada. The lipid profile measurement done with Reflotron plus EN device from German with Reflotron strip. The samples collected before taken the Omega 3 and after 30, 60 and 90 days the measured done and the results showed in the Table 1.

RESULTS AND DISCUSSION

This study designed to investigate the effect of omega 3 on lipids profile, the study revealed in table -1- that there were positive effect of omega 3 on triglycerides by reduce triglycerides level.

High triglyceride (TG) levels have been recognized as an independent risk factor for coronary heart disease (CHD), while severe hypertriglyceridaemia) fasting TGs ≥500 mg/dL) significantly increases the risk of acute

pancreatitis, a potentially deadly complication. [4] Moreover, a key feature of the dyslipidaemia associated with the metabolic syndrome as well as diabetes is elevated TG levels. Fish oil can have à favorable role in the treatment of noticeable hypertriglyceridaemia [5]. According to the American Heart Association, Omega-3 fatty acids benefit the heart of healthy people, and those at high risk of—or who have—cardiovascular disease. Research has shown that omega-3 fatty acids decrease risk of arrhythmias, which can lead to sudden death. Omega-3 fatty acids as well decrease triglyceride levels as shown in this study in table 1, also omega 3 fatty acids can slow the growth rate of the atherosclerotic plaque, and produce modest reductions in blood pressure. The omega-3 fatty acids in fish oil seem to be able to expand blood vessels, and this brings blood pressure down. DHA is far more abundant than EPA in the myocardium. DHA alone or in combination with EPA may be more important for protection against dysrhythmias and cardiovascular disease than EPA alone [6]. Omega 3 fatty acids act on Triglycerids metabolism primarily include the suppression of hepatic Very Low Density Lipoprptein synthesis and discharge [7]. Additionally, the conversions of Very Low Density Lipoprptein (VLDL) to intermediate-density lipoprotein (IDL), VLDL to LDL, and IDL to Low Density Lipoprptein (LDL) are significantly increased; this may partly explain the increase in LDL-C levels observed in ω -3 FA-treated patients [8]. On the other hand, ω-3 FAs do not significantly change the fractional catabolic rates of apolipoprotein (apo B) in VLDL, IDL, or LDL or change the catabolism of the chylomicron remnants. Consequently ω-3 Fatty Acids effectively decrease the plasma concentration of Triglycerids, mainly by reducing VLDL production but not by altering the catabolism of apo B-containing lipoprotein or chylomicron remnants.

Table 1. The level of lipid profile and atherogenic ratio during the study

Parameters	Baseline	After one month	After two month	After three month
Total Cholesterol	188	118	124	126
Triglycerides	120	100	90	75
HDL-C	45	40	36	35
LDL-C	61	63	65	67
VLDL-C	115	16	16	15
Atherogenic ratio	1.5	1.5	1.6	1.5

CONCLUSION

This study indicates that the supplement of omega 3 fatty acids can lead to clinically decrease the level of triglycerides and this decrease is benefit for cardiovascular disease.

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