

# 8<sup>th</sup> NHG ANNUAL SCIENTIFIC CONGRESS 2009

presents



## Omega-3 Fatty Acids In Nutrition, Physical And Mental Health

17 October 2009 | 1330 – 1545 hours | MR310, Level 3 Suntec Convention Centre

### Synopsis

#### Part I:

Omega-3 fatty acids in human nutrition, cardiovascular disease and infant development.

Essential fatty acids were first identified as such by Burr and Burr in the 1930's. The importance of the Omega-3 fatty acids, and particularly the long chain Omega-3 fatty acids EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) was first established by the groundbreaking epidemiological studies of Bang and Dyerberg with the Inuit of Greenland in the 1960s and 70's. They demonstrated that disease patterns in this population, despite a high fat and high saturated fat diet, were favourably modified by the high intakes of EPA and DHA from fish and marine mammal food sources. Later intervention studies demonstrated that EPA and DHA modify a number of independent risk factors for cardiovascular disease, elevated blood triglyceride levels, platelet aggregation, blood pressure and inflammatory markers and also in large scale studies reduce rate of secondary infarct.

Since the late 1980s the importance of long chain Omega-3 fatty acids, especially DHA, has been clearly demonstrated in maternal and infant nutrition. Intervention studies supplementing either the mother or infant have demonstrated improved outcomes related to both visual and cognitive development. Correlational data shows positive relationships between infant DHA status at birth and measures of cognitive, motor and behavioural development at up to 7 years of age.

#### Part II:

An enhancement of aggression during times of mental stress in healthy young students was reduced by prior administration of fish oil. Impulsivity of girls (9-12 y of age) was significantly reduced after docosahexaenoic acid (DHA)-fortified food supplementation. Physical aggression of those girls was also beneficially controlled in the DHA group. Aggressive behavior of children with attention deficit/hyperactivity disorder was reduced during the same DHA-fortified food supplementation. (All of these studies above were performed in a double-blind fashion.) Seventy-five drug-naïve patients with acute schizophrenia were recruited. The concentrations of eicosapentaenoic acid and DHA in RBC showed significant negative correlations with the hostility subscale of PANSS scores after adjustment for age and sex. These effects of fish oil may be explained by enhancement of the serotonin functions in the brains.

#### Part III:

An overview of the current evidence for the use of omega-3 fatty acid supplementation for the treatment of learning and behavioural disorders in children and adolescents will be discussed. An introduction of the SASSI (Supplement and Social Skills Intervention) study with its preliminary results will also be discussed. The overarching aim of the 6-month (24-week), randomized, double-blind, placebo-controlled trial is to assess whether a nutritional intervention, when combined with a more traditional treatment approach to conduct disorder and ADHD, is more effective than either approach alone in treating these conditions in children and adolescents. The specific aims and associated hypotheses are as follows: 1. To assess the effectiveness of omega-3 fatty acid dietary supplementation in reducing both conduct disorder and also comorbid ADHD / conduct disorder. 2. To identify factors that moderate the relationship between omega-3 supplementation and outcome for antisocial behavior. 3. To assess the effectiveness of social skills training in reducing conduct disorder. 4. To assess whether omega-3 supplementation interacts with social skills training in reducing antisocial behavior. 5. To uncover mechanisms of action underlying any treatment effect.

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### Symposium Topics

#### Introduction To Omega-3 Fatty Acids In Health And Nutrition

Mr Peter CLOUGH, Research Director, Efamol Ltd./Wassen International

#### Cardiovascular

Mr Peter CLOUGH, Research Director, Efamol Ltd./Wassen International

#### Infant And Maternal Nutrition

Mr Peter CLOUGH, Research Director, Efamol Ltd./Wassen International

#### Fish Oil And Aggression

Prof Tomohito HAMAZAKI, Physician and Department Chairperson, Clinical Sciences, Institute of Natural Medicine, University of Toyama, Japan

#### Conduct, Learning Disorders And The SASSI Trial

Dr LIM Choon Guan, Consultant, Child and Adolescent Psychiatry, Institute of Mental Health, Singapore

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