RECENT STUDIES AND RECOMMENDATIONS FOR THE PREVENTION OF DIET RELATED DISORDERS AND HIGH RISK FACTORS IN SCHOOL AGE CHILDREN AND ADOLESCENCE

ESSAY

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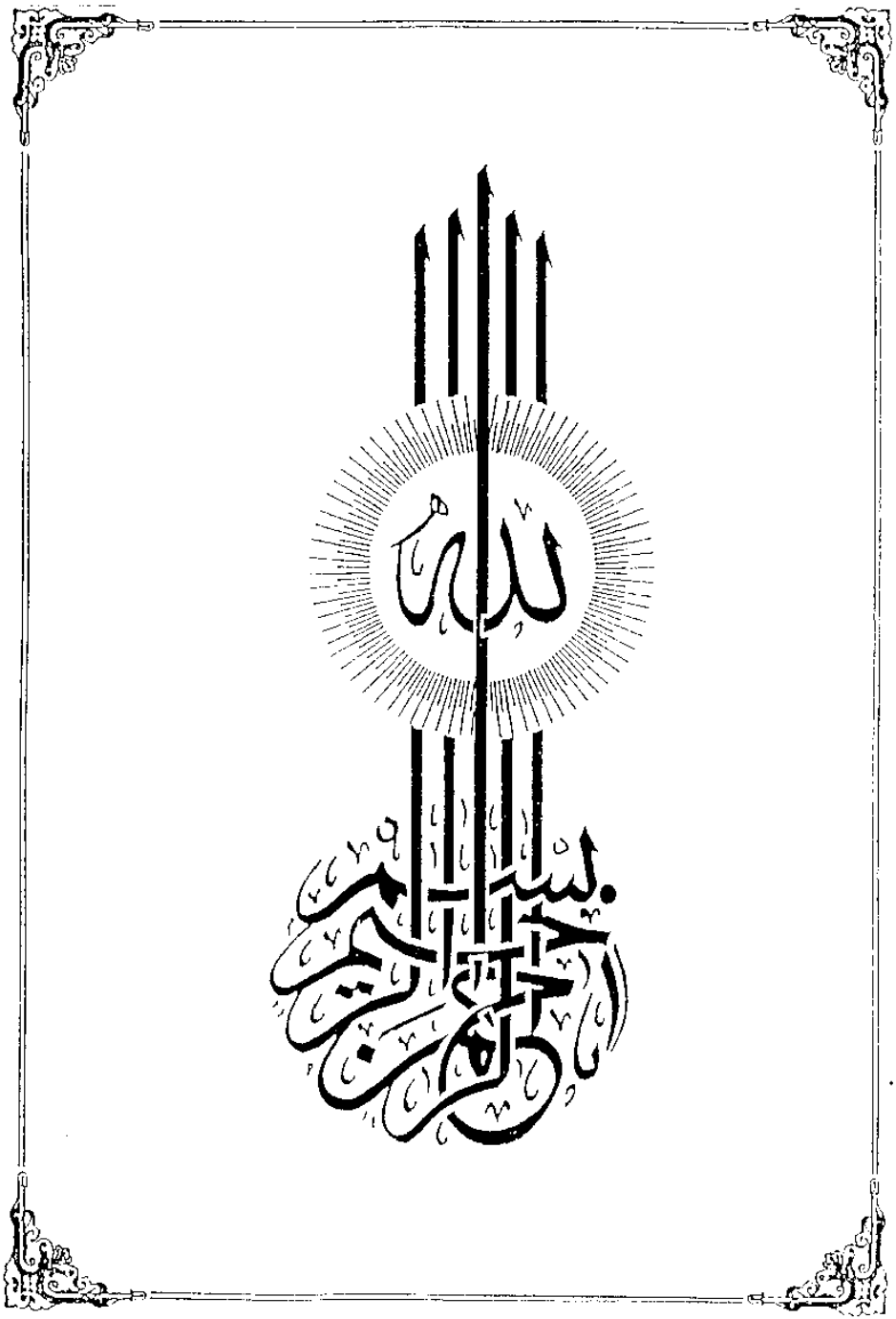

A C K N O W L E D G E M E N T

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Bl.P.	: Blood pressure.
Ca	: Calcium.
CHD	: Coronary heart disease.
CNS	: Central nervous system.
CVD	: Cardiovascular disease.
DM	: Diabetes mellitus.
ECG	: Electrocardiograph.
HDL	: High density lipoprotein.
HDL-C	: High density lipoprotein cholesterol.
HMMA	: Hydroxy methoxy madelic acid.
K	: Potassium.
LDL	: Low density lipoprotein.
LDL-C	: Low density lipoprotein cholesterol.
Mg	: Magnesium.
Na	: Sodium.
NIDDM	: Non-insulin-dependent diabetes mellitus.
P/S	: Polyunsaturated / saturated fatty acids.
S.D.	: Standard deviation.
VLDL	: Very low density lipoprotein.
VLDL-C	: Very low density lipoprotein cholesterol.

INTRODUCTION

INTRODUCTION

Nutritional requirements of individuals vary in respect to genetic and metabolic differences. For all infants and children , however , the basic goals include satisfactory growth and avoidance of deficiency states . Good nutrition contributes to the prevention of acute and chronic illness and to the development of physical and mental potential , and should provide reserves for stress *(Barness, 1983)*.

Dietary Risks Among Children and Adolescents :

Children and adolescents face different forms of malnutrition . Inadequate diets leading to starvation, undernutrition , or classical vitamin and mineral deficiencies are common especially in the low socioeconomic classes . Inappropriate diets including overnutrition and imbalances appear to be on the upswing in all social classes. Dietary imbalances with respect to total fat , cholesterol,sodium, and energy are widespread in all income and ethnic groups by mid- and later childhood , or adolescence , and occur for some children in the preschool years. Perhaps the most important questions that remain unresolved in the nutritional sciences concern the relation of diet to the development of chronic diseases *(Rhoads, 1987)*.

Some children have adequate or even excessive energy intakes but inadequate intakes of protective nutrients such as iron , and vitamins A and C. Occasionally toxicities occur because of excessive doses of vitamin or mineral supplementation given to children.

Other eating problems that exist in these age groups include food allergies , intolerance , and hypersensitivities. Finally, malnutrition secondary to disease remains a problem *(Dwyer, 1986)*.

CHAPTER I

DIET AND HEALTH

DIET IN THE ETIOLOGY OF SOME DISEASES

I. CARBOHYDRATES

The greatest portion of the caloric needs of the body is supplied by carbohydrates , which also supply the necessary bulk of the diet (50 %). In the absence of sufficient carbohydrates , proteins and fats will be utilised for energy

Carbohydrates are oxidised as glucose , but are consumed as various forms :-

1. Simple carbohydrates :
   a. Monosaccharides : glucose , fructose and galactose.
   b. Disaccharides : lactose , sucrose , maltose and isomaltose.

2. Complex carbohydrates :
   * Polysaccharides : starch , dextrins , glycogen and cellulose.

(*Mac Donald, 1987*).

CARBOHYDRATES IN THE ETIOLOGY OF SOME DISEASES

I. Carbohydrates and Dental Caries :-

There is little doubt that flouridation has greatly reduced dental caries. However , even among child populations that have the benefit of flouridation of the water supply or topical application of the flouride , groups that consume high amounts of sugar exhibit higher amounts of dental caries than do groups consuming low amounts of sugar. The quantity of sugar in the diet is not the single nor the all important critical factor in dental caries causation. The seemingly dominant role of one particular form of sugar , sucrose , in caries is explained by the fact that it is the fermentable carbohydrate that appears most frequently in the diets of children. The danger of candies and other foods that contain very high concentrations of sucrose to teeth depends more on whether they are eaten in such a manner that they give rise to high acid production (e.g. frequently in a sticky form without proper oral hygine) than on their actual sucrose content *(Dwyer, 1986)*.

The strength of caries attack depends on the usual frequency and types of between-meal eating as well as on sugar intakes. Current evidence suggests that sugary

confections , sugary baked goods , and sugar sweetened drinks consumed frequently between meals when oral hygine is likely to be poorest are the most important factors in dental caries causation (*Scheinin, 1987*).

II. *Carbohydrates and Coronary Heart Disease* :

Diet is one of the most important determinants of serum cholesterol and lipoprotein levels and hence the development of coronary heart disease (CHD). Serum cholesterol is raised by excess calories , total fat , saturated fat , and possibly animal protein *(Kannel et al., 1984)*.

Recent studies indicate that the amount of carbohydrates consumed in diets have little or no long term effect on the plasma lipid levels. The effect of a sudden increase in the amount of carbohydrate in the diet is a temporary elevation of plasma triglyceride concentration, the so-called " carbohydrate-induced hyperlipidemia ". The immediate metabolic consequence of excessive calories, from whatever source , is an increased supply of substrates for triglyceride synthesis in the liver with subsequent increased plasma triglycerides. Long term studies have shown that plasma triglyceride concentrations may remain elevated for as long as 20 weeks and then subsequently return to the normal baseline levels (*Conner and Conner, 1982*).