

over a period of 3 days. Fifty-two preschool children, aged from 36 months to 84 months were included in this study. 17.3% (9 of these children) were overweight or greater than 85% BMI. The statistically significant difference ($p < 0.05$) between the normal and overweight group, was higher diastolic blood pressure (mean value 99 ± 11 mmHg), albumin (mean value 5.0 ± 1.1 mg/dL) in the overweight group. The statistically significant difference ($p < 0.05$) was between the low and normal cholesterol groups with have higher diastolic blood pressure (mean value 96 ± 7 mmHg), albumin (mean value 4.7 ± 0.5 mg/dL), GOT (mean value 30 ± 9 unit), GPT (mean value 18 ± 14 unit) in low cholesterol group. The low cholesterol group exhibited greater sugar intake. 63.5% of the subjects drank milk everyday. Between 90.4% and 92.4% of the subjects did not eat egg and plant protein food everyday. About 7.6% of the subjects ate extruded snack at least 1 (50 g/pack) everyday. The results of this study were opposite from our expectation but similar to our previous study published in 1999 with 302 samples. We might use a small sample size in future studies.

2.03.177 Poster

PREVALENCE OF RISK FACTORS ASSOCIATED WITH CARDIOVASCULAR DISEASE AMONG A SAMPLE OF ADULTS 40 YEARS AND ABOVE

Y. Zaitun, C.N. Che Muhaini

Department of Nutrition and Health Science, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Malaysia

The objective of the study was to determine the prevalence of risk factors associated with cardiovascular disease (CVD) among adults 40 years and above. The study population was residents at two housing estates. Respondents were interviewed using a set of questionnaire. A total of 100 respondents who met the selection criteria was selected for the study. They consisted of 39 males and 61 females. The CVD risk factors included in the study were obesity, hypertension, diabetes mellitus, hypercholesterolemia, and smoking. The results of the study showed that a majority (66.9%) of the respondents was between the age of 40–50 years. Only 7.0% did not have any formal education. About 44.8% of the respondents had family income in the range of RM1001–RM3000. The mean systolic blood pressure (BP) was 139.8 mmHg and 43% had systolic BP higher than 140 mmHg. The mean diastolic BP was 87.6 mmHg and 40% had diastolic BP greater than 90 mmHg. The mean total blood cholesterol level was 5.5 mmol/L and 58.9% of the respondents were hypercholesterolemic (>5.2 mmol/L). The mean blood glucose level was 4.9 mmol/L and 9% of the respondents had blood glucose level higher than 7.8 mmol/L. The mean body mass index (BMI) of the respondents was 26.5 kg/m² and 39% were overweight and 18% were obese. About 10% of the respondents were still smoking and 15% had previously smoked. About 26% of the respondents reported hypertension as one of the health problems which has been diagnosed by a physician. There was a significant correlation between age of respondents and waist-hip ratio (WHR) ($r = 0.267$, $p < 0.01$), systolic BP ($r = 0.522$, $p < 0.01$) and diastolic BP ($r = 2.67$, $p < 0.01$). It showed that with increasing age, WHR, systolic and diastolic BP also tend to increase. Overall the results of the study revealed a high prevalence of risk factors associated with CVD including hypercholesterolemia, systolic and diastolic hypertension and overweight among the adults. About 44% of the respondents had one to two risk factors and 41% had three to five risk factors. These data revealed that there is evidence of CVD risk factors among the respondents in the study. Therefore, it is recommended that appropriate community-based intervention programmes should be formulated and implemented to reduce the risk of CVD.

2.03.178 Poster

THE INFLUENCE OF PROTEIN ON HYPERLIDEMIC AND ATHEROSCLEROSIS IN RABBIT.

S. Herman¹, H.E. Ridwan¹, H. Sudiman², H. Widjaja², T. Ungerer³

¹Nutrition Research and Development Center MOH; ²Faculty of Food Technology, Bogor Agricultural Institute; ³Faculty of Veterinary, Bogor Agricultural Institute, Indonesia

Background: Diet composition is one factor of hypercholesterolemia and atherosclerosis. Most study on the role of protein on the hypercholesterolemia and atherosclerosis was done by comparing casein versus soy protein.

Objectives: To evaluate: 1. whether egg, beef, fish, and milk protein isolate more hypercholesterolemic and atherogenic compared to soybean, green bean, and mung bean protein isolate as well as their flour.

Method: NZW rabbits were placed in individual cage. The rabbits were fed ad libitum for 16 weeks. The diets were iso-caloric, contained 20% (w/w) protein, 5% (w/w) fat, and the source of protein was the only independent variable.

Results: Animal protein isolates more hypercholesterolemic and atherogenic compared to legumes protein isolates. Among animal proteins, mackerel fish protein isolate and mackerel flour was the most hypercholesterolemic and atherogenic.

Isolate protein tended more hypercholesterolemic compared to the flour of the food. Addition 1% methionin to the legumes protein isolates diets influenced on the blood LDL cholesterol 0.5–4 times higher. Morphometric examination of the thoracic aorta of the rabbits shows the areas and thickness of the plaque in the proximal, tunica intima and tunica media of the rabbits fed mackerel fish protein isolate and mackerel flour diets were higher compared with other diets ($p < 0.05$). There are no plaque found in the rabbits fed legumes protein isolate and legumes flour diets.

Conclusions: 1. Animal protein more hypercholesterolemic and atherogenic compared to legumes protein. 2. Mackerel fish protein was the most hypercholesterolemic and atherogenic.

2.4 Eating and food patterns

2.04.001 Keynote lecture

BETTER UNDERSTANDING OF EATING PATTERN FOR BETTER UNDERSTANDING OF HUMAN NUTRITION

Ulrich Oltersdorf

Institute of Nutritional Economy and Sociology, Federal Research Centre for Nutrition, Karlsruhe, Germany

The relationships between nutrition and health are apparently 'ultra' dimensional. At the level of food and nutrition physiology there have to be considered many different substances (e.g. nutrients, bioactive, toxic). All these enter the metabolic pathways of the many different humans (biodiversity, biography), who are living in various environmental and social situations and who have to fulfil a wide range of daily activities. In addition not only the magnitude of influencing variables have to be recognised, but also their interrelationships and their changes with time, which characterise all biological processes of life. This complexity can lead to a feeling of the impossibility to explore the universe of human nutrition. However there are tools emerging, which are useful for the approach to investigate complex nutrition research areas. Such approaches utilise the fact that many of the relevant variables are interrelated. Nutrients are eaten in 'shells' of foods; foods are the component of dishes; dishes form menus and one's eating style, and thus describe the regional cuisine. At the corresponding side of the nutrition research complex, the human eating behaviour is interrelated with other daily activities and settings; and these are put into sequences of time and space. The daily diaries indicate regular activities related to eating (shopping, preparing, eating etc.). The structure of such diaries characterise humans, they are typical for human groups ('types'). In similar ways the environments and the tasks of humans can be structured. Such patterns and structures should be included into nutrition research models. Such approaches increase the chances to understand better the relationships between nutrition and health, and to implement more efficiently nutrition into public health programs.

2.04.002 Keynote lecture

Abstract not received.

2.04.011 Short communication

FOOD INTAKE IN NICOTERA, SEVEN COUNTRIES STUDY TOWN, IN 1960 AND 1996

A. De Lorenzo, A. Andreoli, A. Alberti-Fidanza, R.P. Sorge, N. D'Orazio, F. Fidanza

Human Nutrition Unit, University of Rome 'Tor Vergata', Nutrition Section, University of Perugia, Human Nutrition Unit Univ. Chieti, Italy


The so-called Mediterranean eating style may help prevent heart disease as well as reduce the risk for some cancers. The effects of the 'Mediterranean diet' or mortality is still evident in Italy, where food patterns differ significantly in different geographical areas. To examine changes in food intake in Nicotera, one of the towns of the 'Seven Countries Study,' in 1960 and 1996. Eighty adult residents of Nicotera (43 male, 37 female, age 40–60 years), selected at random, were examined in 1996. Food intake of the 1996 study participants was assessed by a semiquantitative questionnaire of food frequency, validated for the Italians. In 1960 food intake of the Nicotera sample was calculated from the results of Fidanza. Food preferences differed markedly in 1960 and 1996. Consumption of animal food products increased, as did that of cakes, pies and cookies and sweet beverages in both male and female; an increase of alcoholic beverages was observed only in female. In 1960 Nicotera inhabitants followed a "reference Mediterranean Italian diet," but not in the 1996. Improved socio-economic status and wider food distribution may be a major determinant of this change. This change in dietary habits may increase the risk of CHD and cancer in the general population in the absence of other factors. Appropriate nutrition intervention programmes are needed to confront deteriorating eating habits.

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J. König, Vienna, Austria

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