Singapore Dietitians' Association

The Singapore Dietitian

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Singapore Dietitians' Association

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The Singapore Dietitian

VOL. 4 No. 2 September 1989

Editorial...

Welcome to this special issue of "The Singapore Dietitian" marking the Fifth Anniversary of the Singapore Dietitians' Association (SDA). To give our journal a wider reach on this occasion, we have printed an extra 20,000 copies over and above our usual circulation. It follows that many of you may be first-time readers, and may be wondering who SDA is and what the Association is all about.

For those not familiar with our Association, let me briefly outline the aims and objectives of SDA:

- *To spread the knowledge and further understanding of dietetics, dietetics is the application of nutritional science in health and disease.*
- *To provide professional advice on matters relating to nutrition and dietetics.*
- *To bring about closer co-operation between dietitians and those in allied fields, in order that more effective work may be done.*
- *To improve and update the practical and theoretical knowledge of dietitians.*
- *To upgrade the dietetic profession in Singapore.*

It is in line with these objectives that the Association is organising the most ambitious event in our history to date — a one-day symposium to be held on Nov 4th at the World Trade Centre. With a theme entitled "Nutrition and our Changing Lifestyle", this symposium promises a most informative and relevant programme for a wide-ranging audience including medical and health professionals, those in the food industry, educators, as well as health-conscious members of the general public. For full details of the programme and how to register, please turn to Page 10 and 11.

We do hope that you will find the contents of our journal interesting. Please drop us a line if you would like further information about SDA.

The Association wishes to acknowledge the valuable support of our advertisers in this Anniversary issue.

Cover : *Members of the SDA delegation to the 14th International Congress of Nutrition, Seoul, at the Opening Ceremony.*

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From the President ...

Fifth Year Anniversary — Building Our Future Together

I remember vividly the first meeting of the Singapore Dietitians' Association (SDA) in May, 1984. On that occasion, dietitians and nutritionists got together to officiate the formation of the SDA. For many of us, it was the first step towards developing friendships, a sense of unity and support among ourselves. At that time, there was hardly any job opportunity or advancement in the dietetic profession. Our expertise was not well established and recoginzed by the medical and health professions. Dietitians were merely looked upon as either caterers or food service/kitchen managers. There was overwhelming support from the dietitians to form the SDA to upgrade the dietetic profession in Singapore.

In the past five years, the association has been progressive in promoting the dietetic profession and expertise to other allied professions and the public through the publication of articles and journals, organization of professional and nutritional programmes for members, other health professionals and the public. To help consumers distinguish between qualified and unqualified providers of nutrition services, the SDA adopted a registration system for qualified dietitians (Registered Dietitian of Singapore, or RDS.). Registration is a voluntary process established recently by the SDA to protect the health, safety and welfare of the public by encouraging a high standard of dietetic practioner performance (Refer to article, Dietetic Practices in Singapore — Challenges Ahead in March 1989 issue).

During the April, 1989 National Nutrition Week, the Ministry of Health published guidelines for a healthy diet recommended by the National Advisory Committee on Food and Nutrition. These guidelines have placed new emphasis on food and nutrition. For the public, the reports heightened the knowledge that diet is related to chronic diseases, especially heart disease, stroke, cancer and diabetes. The guidelines also left no doubt that the population must have healthful foods from which to choose from and enough information about those foods to make healthy choices.

Presently, many steps are being considered to separate clinical dietetics from food service departments in health care and facilities. Many clinical dietitians want to separate themselves from any activities associated with food or food service, believing that such separations would help improve the status of the dietitian. With the new emphasis on food, can dietitians afford to ignore or remove themselves from food and food service activities? I strongly believe that dietitians should continue to be involved and direct the dietetic and food service departments in hospitals. We need to concentrate our resources and efforts to influence and formulate the budget and operation policies in controlling the food and nutrition services.

The public is more willing to hear about health, wellness and fitness than about illness and death. Most people want to know about foods, not nutrients. There is much to be gained by a shift to promoting healthful food that fits today's busy lifestyles than the endless recital of "Thou shalt not want ...". This shift is also a good way to market the expertise of dietitians in food service, community programmes, education and consultation. There will always be enough diseases and severely restricted diets to keep us busy, but we will do more for our image if we align ourselves with great tasting, beautiful food that is fun to eat. Dietitians are the perfect link between nutritional science and consumer need, translating messages into healthy food choices.

Thus, we, the members of SDA, must play an active role in assuring the improvement of the health and nutritional status of the population. Only by placing a new emphasis on food, nutrition, and working together can we have an impact on the health of the nation and enhance our status as food and nutrition experts.

Supporting one another and SDA, in words and deed, contributes to the collective good of the professional organization. The professional organization can facilitate this effort but the increased recognition of dietitians as professionals will occur as more and more members individually commit themselves to demonstrate excellence. Participation in SDA supported activities, i.e. publications, community educational programmes and also a positive interraction with a client in counselling and introducing new and better services in your dietetic and food service departments will also help to enhance the dietetic profession. Each of these actions can give personal satisfaction and contribute to the collective positive image of dietitians. Your success will reflect on all of us, and mutual support is the name of the game. Together, we can make it happen!

Susani K Karta
President
Singapore Dietitians' Association

Food Irradiation : New Technology In Food Preservation

Poon-Loh Mai Leng, B.Sc., RDS

Advance in food technology has led to newer forms of treatment of food items, in order to preserve or cook foods.

Food irradiation is a means of food preservation to extend the shelf life of perishable goods. In the light of increasing public awareness on food safety, it stands to reason to expect that irradiated foods will certainly arouse anxiety and apprehension.

Irradiated foods have yet to hit the local Singapore market, and this timely article will introduce the topic to nutrition educators and health professionals, as well as to consumers.

What Is Food Irradiation?

Basically the process involves the exposure of food to ionizing radiation developed either from radionuclide sources (Cobalt — 60 or Cesium — 137) or from electron accelerators (machine sources) which generate the beams.

The amount of radiation absorbed by the food item is expressed as 'rads' and more recently as 'Grays'. 100 rads = 1 Gray. Rad is the term that remains widely used however. In general, the application of approximately 10,000 to 50,000 rads (100 to 500 Grays) is the effective dose range to control insects in food, to inhibit the sprouting of potatoes and onions and to control parasites in meat products. The "pasteurisation" level, called radurization, is applicable for foods treated in the range of 50,000 to 200,000 rads (500 to 2000 Grays) eg for the control of Salmonella in poultry products. The application of levels to provide control of food poisoning micro-organisms (i.e. radiation) is generally considered to be in the region of 200,000 to 600,000 rads and for sterilisation to accomplish the killing of all micro-organisms present, 1,000,000 to 4,000,000 as well as the technological circumstances during irradiation treatment. Each food system needs to be considered on a case by case basis to take into account variables in the system whether derived from plant or animal, the moisture content, the temperature used during the irradiation treatment, and the desired effect or effects to be achieved during the irradiation treatment.

Thus in this atomic age, there is now available a new technology that has the potential to improve food products available to the consumer. But, will such preserved food find its way into our market soon? Is such food safe for human consumption? Are there any long term effects from consuming foods subjected to irradiation? What effects does this have on the nutritive value of the foods which are irradiated?

In April 1986, the Food & Drug Administration in the United States, in the midst of a renewed interest in the potential for the use of irradiation in the preservation of foods, granted permission for its use at low levels to control insects, to extend the shelf-life of fruits and vegetables and to control parasites. Higher dosages were approved to control microbial contamination of spices, dehydrated onions and garlic. Irradiation of food has been extensively studied during the past forty years. Apart from the States many other countries also have given government approval for food irradiation and this is constantly reviewed. Meanwhile, active research continues to probe into various factors surrounding the use irradiation in foods. These include:

- long term feeding tests to assure wholesomeness of the process;
- assurance of the safety of food, particularly when a new processing technology is being considered;
- any adverse effects which had occurred attributable to the irradiation treatment;
- and finally consumer acceptance.

Factors involved are the decision of Congress, through the Delaney Amendment, to require that the irradiation of food be treated as a food additive.

It is a unique process because only a few degrees rise in temperature occurs with the application of radiation to food systems and this has led to the term 'Cold Sterilisation' for food so treated where the irradiation dose is sufficient to kill all micro-organisms. With appropriate packaging prior to irradiation, it was found that food so treated was not susceptible to microbial spoilage when kept at room temperature.

The only known commercial application in the US is for controlling the microbial contamination of spices, dehydrated onions and garlic. Others are being explored but as yet not used commercially. Commercial applications in other countries include control of insects in grain (Russia), the inhibition of sprouting in stored potatoes (Japan), and the extending of the shelf life of certain fruits and vegetables shipped from South Africa to Europe.

Nutritive Value, Wholesomeness And Safety

As far back as 1971, a US study showed that irradiation reduced the thiamine content of ham and that the reduction was markedly influenced by the temperature of the food during irradiation. At lower temperatures, the food was much less sensitive to thiamine due to irradiation. Also vitamins sensitive to the presence of oxygen, namely — vitamin A, C and E were more susceptible to losses during irradiation. Other vitamins were essentially stable. In addition no significant change was noted in the properties and nutritive value of protein, fats and carbohydrates and minerals when the irradiation carried out was up to 4000,000 rads. However, some changes that occured with irradiation included fat oxidations that took place more rapidly and some breakdown of complex carbohydrate in plant tissues.

Overall, the changes in nutritive value were said to be similar to those associated with heat processing preservation methods. Foods that eventually will be cooked as well as irradiated before consumption will be subjected to additive effect on their total nutritive value.

Poon-Loh Mai Leng is currently Dietitian with Changi International Airport Services at the Food Services Department, National University Hospital. A dietetics degree holder from Leeds Polytechnic, she formerly worked in research at the University of Malaya, Kuala Lumpur, and later was Clinical Dietitian at Ripas Hospital, Brunei.

Consumer Acceptance

This area will of course attract considerable attention. It will not be surprising if someone asks 'Will my food glow in the dark'?!, even though extensive studies have shown that the energy level of irradiation used does not result in any increase in induced radioactivity in the food product. Particularly in the light of rising awareness among the public on food safety and their thirst for more information of what goes into their food, it stands to reason to expect that food treated with irradiation will incur a certain amount of anxiety and apprehension. Just as preservatives and additives have their role to play in food, their usage being monitored under strict food laws and regulations, the same assurance will apply to irradiated foods. Current FDA regulations provide for the use of an international symbol for food irradiation plus a written comment indicating that the food has been irradiated. With this new and rather complex method of processing, information indicating food has been irradiated is necessary.

Due to its rather limited commercial application at this time, irradiated food will not make its appearance in the immediate future in Singapore. Singapore consumers are protected by stringent food laws and regulations which ensure that what food is available, especially imported food, is wholesome and safe for consumption. But nevertheless, consumers should be aware of the new possibilities present in today's technology and also take an interest in reading food labels. Ultimately, the consumers are the ones to decide what goes on their plate and it is worth their while to make a choice based on facts rather than ignorance.

The symbol indicating irradiation has been used.

Reference

Schweigert B. F. Food Irradiation. Nutr. Today Nov/Dec pp. 13-19, 1987.

Vegetables And Fruits Are Fragile — Handle With Care!

Tempting arrays of fruits and vegetables are seen on the wet markets and supermarkets of Singapore. These luscious foods are a significant source of vitamins C, E, A *and beta-carotene, nutrients which have been associated with lowering cancer risk. However, some of these essential vitamins may be lost before they are eaten unless care is taken to select, store and prepare high quality produce.*

Selection

Quality begins at the display racks of the markets. Stringent selection procedures are essential. Choose produce that is not damaged, bruised or wilted, since rough handling destroys vitamins. Vitamins in the foods degrade after 4 — 5 days and the fresher the goods purchased the higher the nutrient content. When your favourites are out of season, buy frozen goods. These have been flash frozen at their peak for quality and nutrient content storage.

Storage

Fruit should be ripened at room temperature, then refrigerated. Vegetables also need to be stored in cold humid conditions until they are used. Avoid washing produce until just before cooking, and soaking as it draws out nutrients. Rinsing is the best washing method.

Preparation

Many of the nutrients in fruits and vegetables are found in more concentrated form just below the skin. Edible skins, if eaten contribute dietary fibre to the diet. Cutting fruits and vegetables in thicker slices or chunks is more desirable than cutting it too fine, as vitamins E, A, C and some B-vitamins are lost due to exposure to air.

Cooking

Soaking, boiling or canning can draw the water soluble vitamins, selenium and potassium from the food into the pot. Unless this water is used in cooking much of these nutrients will be lost. Steaming, stir frying and microwaving also retain more vitamins. Vegetables should be cooked until just tender-crisp, as overcooking will destroy vulnerable vitamins.

Vitamins E, K, A and beta carotene are lost when vegetables are deep fried as these nutrients are fat soluble.

Cooking with alkali (baking soda) so that vegetables will retain their bright colours, however, means nutrient levels are drastically reduced.

The following checklist will help you obtain the most vitamins from fruits and vegetables.

- Choose dark green, yellow or orange fresh fruits and vegetables
- Avoid bruised, wilted or damaged produce
- Refrigerate fresh vegetables and fully ripened fruit
- Serve raw vegetables within 4 — 5 days of purchase
- Prepare produce close to serving time
- Wash quickly by rinsing or gently brushing
- Minimize chopping and peeling. Trim sparingly
- Steam, microwave, stir fry or boil in a small amount of water until tender crisp
- Save cooking liquids for sauces, soups and stews.

Source: Newsletter, American Institute for Cancer Research. Issue 15, 1987.

Dietetic Practices In Singapore — Challenges Ahead

Susani K. Karta, M.Sc., RDS

The health service in Singapore is now placing more emphasis on disease prevention rather than disease treatment, and both the public and private sectors are taking steps to shift the focus to nutrition and preventive care.

We, the dietitians and nutritionists, have significant roles to play in this health promotion and disease prevention movement. Dietitians, with their knowledge of food, nutrition and health, have a great deal to contribute to the health promotion movement. Thus, we should monitor the movement carefully as a source of new markets for dietetic services.

Edna Langholz, the 1981-1982 President of the American Dietetic Association once said "We must ask ourselves today how we can meet the challenges of tomorrow, how we can prepare for tomorrow, and what factors will determine the direction of tomorrow's road".

Trends Of Dietetic Practice In Singapore

Most dietitians in Singapore are employed by health care institutions with a small but growing number of dietitians working in the business and industrial sectors. About 77 percent of the dietitians practising today are employed in hospitals and government agencies. As shown in Table 1, the field for dietetic practices in Singapore is projected to have an excellent growth potential in the next five years. Projected number of dietitians in practice will increase from the present 30 to 54 in 1994, an increase of 80 percent. The largest growth will be in the institutional sector (government and private hospitals/agencies). However, the number of dietitians and nutritionists attached to the business and industrial sector (food and pharmaceutical companies, private clinics or practice) will double from 7 (23 percent) to 14 (26 percent) in Singapore.

Potential Field Opportunities For Dietitians:

A. Health Care Institutions

I. Acute Care Hospitals

II. Ambulatory Care (Nursing Homes, Polyclinics, etc.)

B. Government Organizations

C. Educational Institutions

D. Business And Industry (i.e. contract food service companies, pharmaceutical/nutritional food companies, etc.)

Table 1 shows that the number of dietitians employed in hospitals will increase in the coming years. The ratio of patients to dietitians will be reduced from 300 patients per dietitian to 150 patients per dietitian.

Susani Karta, graduated with a B.Sc *in Dietetics from Loma Linda University, California, and an* M.Sc *in Institutional Management from Kansas State University. Formerly an administrative dietitian at Massachusetts General Hospital, Ms Karta is currently Technical Director — Human Nutrition in American Soybean Association, Singapore. She is a member and registered dietitian of American Dietetic Association, and the current president of the Singapore Dietitians' Association.*

For an individual seeking proficiency in a specialized field, formal advanced education will be required, probably involving field experience. With more dietitians moving from administrative or food service management to clinical practices, one needs to be careful of this switch. There is evidence that some institutions are employing people with background in food service management rather than dietetics, as directors of food service. Some hospital administrators apparently believe that it is better to have food service managers in charge of the dietetics department with dietitians reporting to them. If such a trend develops and continues, it would represent a loss of status and responsibility for the dietitians in these institutions.

Besides the change in the practice of dietetics in hospitals, we also see opportunities for more dietitians to venture into private practice as consultant dietitians/nutritionists either individually or in a group.

E. Private Health Centres/Clinics

The following section briefly describes the background trends that influence the future projections of dietetic demand. The six factors known to influence the demand for dietetic service are:

1. **Social and economic trends** which include population characteristics, the economy, health expenditures and methods of payment for services.
2. **Public policy** set up by the government influences the existence of publicly supported nutrition and food programs, the degree of regulatory control, and the specification of professionals in the delivery of nutrition services.
3. **Health values, attitudes and behaviours** influence the population's attitude towards nutrition services and care, and the willingness of consumers to pay out-of-pocket for dietetic services.
4. **Technology diffusion** will affect the availability of advanced techniques for delivery of food and services to the clients and will create new roles for dietetic practioners to open new communication strategies through telecommunications and computer applications.
5. **Competition** from other professions will affect the demand for dietitians. It will determine whether consumers will seek dietitians for nutritional services and influence the amount of knowledge they have about the quality and range of service from which they can choose.
6. **Professional leadership** may have an impact on the visibility of dietitians, the supply of dietitians, and the demand for their services through advertising and promotion of the profession.

The first five factors exert an external influence on the demand for dietitians while the last is a factor internal to the profession.

Challenges Facing The Dietetic Profession

Like other health professions as well as businesses, industry and government, dietetics has faced some challenges in recent years, unique to the profession. The challenges are both positive and negative. Never before has the subject of nutrition been so popular nor has the general public been so interested in healthy lifestyles. These two facts alone help create a positive environment for dietetic practice. On the other hand, the field of dietetic practice may be threatened by the growing public acceptance of unqualified "nutritionists" and "quacks" and the overlapping or competitive activities of other health professional groups, i.e. nurses, pharmacists. Although other professionals may have some basic knowledge of nutrition, no other professional group has the depth of knowledge on food, nutrition and health as the dietitians.

The Images Of The Dietitian

Dietetics is usually considered to be a supporting rather than a leading profession. There is much in the nature and attitude of dietitians that maintains this image. The profession is predominantly female almost automatically confining its members to secondary roles. Many believe they suffer professionally from this negative image, and many would have preferred more responsible positions. Several major studies in other countries have suggested that a key factor in changing the negative image of dietetics is the personality of the individual dietitian. An acceptance of managerial responsibilities and a willingness to participate in decision making are important, Dietitians must:

- show a greater sense of professional pride and display more self-confidence;
- show more creativity and self-motivation;
- put greater emphasis on communication skills and internal networking;
- work to build a greater sense of self-esteem.

However, the image of the dietitian will ultimately be determined by the ability of the individual practitioner to present herself as a competent professional with a solid academic background; a person who is able to think, reason and participate in decision making; and a person visibly concerned and involved in the promotion of nutritional well-being for all.

The profession of dietetics should:

1. Grow to encompass new areas, through more extensive education and training so that the services of dietitians are recognized as crucial components in the care and treatment of patients with special problems.
2. Look for new ways to apply their expertise for the good of society.
3. Not try to delimit its boundaries nor erect barriers to prevent others from entering but expand its activities into new areas where knowledge of food and nutrition is valuable.

Other Negative Challenges

Many consumers are not informed about nutrition services which are available to them or about dietitians who are qualified to provide the services. Many patients depend upon physicians to advise them about health services. Because physicians are not well informed about the range of nutrition services which are available, physician referrals are often limited. Thus, the challenge is to make the dietitian's skills known to the physician and other health professionals who will then make the necessary referrals for the treatment of diet related diseases.

Dietitians and nutritionists are frequently not recognized as part of the health care team. The curriculae for the training of physicians and other health professionals need to include and emphasize not only the basic principles of nutrition but also the role of dietitians and other nutritionists in health prevention and treatment of certain diseases. In addition it should be reinforced that nutrition services be incorporated into health care programs and, where appropriate, dietary or nutrition counselling for individuals or groups be available.

Table 1: Places of Employment for Dietitians in Singapore.

Places of Employment	Number of Dietitians		
	April 1984	April 1989	Projection Demand April 1994
Government Hospitals (6 in 1985, 5 in 1989)	13	8	4
Private Hospitals (4 in 1985, 6 in 1989)	4	13	30
College or University	1	—	2
Government Agencies	2	2	4
Private Health Centres and Clinics	2	2	3
Private Practice — Consultants	—	1	3
Business & Industry	1	4	8
Total no. of Dietitians in Practice	23 (79%)	30 (88%)	54
Non-related Areas:			
Housewives	4	2	
Retired	1	1	
Other than Dietetics	1	1	
Total no. of Dietitians in Singapore	29 (100%)	34 (100%)	

Dietary counselling and instruction should take into account the different ethnic, cultural and traditional backgrounds of Singaporeans. Thus, interpretation and implementation of prescribed therapeutic diets must be individualized and tailored to individual preferences and lifestyles, monitoring of progress and follow-up. Therefore, the handing out of pre-printed diet plans without proper dietary counselling to patients is strongly discouraged.

Registration Of Dietitians

In view of the challenges facing the dietetics profession, the SDA has formed a Registration of Dietitians Committee to undertake the task of formulating a professional registration system for dietetics in Singapore. Registration of dietitians is a voluntary process to be established by the SDA to protect the status and function of qualified dietitians, and to protect the health, safety and welfare of the public by encouraging a high standard of dietetic practitioner performance.

Eligibility for registration will require the acceptance as full members of SDA depending on the academic preparation and experience in dietetic and nutrition practice. Requirement of continuing education for maintenance of registration is also commendable, assuring that most dietitians engage regularly in the continued acquisition of up-to-date knowledge and skills. The Committee for the Registration of Dietitians will formulate the policy for continuing education opportunities. Those entitled for registration will be able to add SDA's proposed trade mark designation "Registered Dietitian of Singapore" or "RDS" to their names.

The SDA plans to promote and market the professional services of Registered Dietitians of Singapore as the best qualified purveyors of nutrition information in health promotion and disease prevention.

The activities of dietitians are increasingly varied. While most dietitians are or will be engaged in clinical nutrition in hospitals, employment outside the hospital will also grow. It is necessary for dietitians to play a leadership role in demonstrating the importance of nutrition services. As there are major challenges and major opportunities ahead, dietitians need to be ready to meet the challenges to provide the public and other health professions with information, education, and guidance on the role of diet in the prevention and treatment of diseases. The time has come for dietitians to assert their fundamental role as members of the health care team and to let their expertise be known.

In conclusion, dietetic practice is and will continue to change. As new ideas and practices develop, the profession should be alert to their significance. If the profession is to keep pace with the changing scene, dietetics must become more dynamic, more assertive, more progressive, and more expansive in its education and practice, and in its relations with the public.

Presented at the Symposium on "Emerging Challenges for the Dietetic Profession," organized by Singapore Dietitians' Association and Training and Health Education Department, Ministry of Health, at Marina Mandarin Hotel, Singapore, 10th April, 1989.

Invitation

In conjunction with the Ministry of Health's "National Health Fair" in October-November, 1989, the Singapore Dietitians' Association is pleased to organize a symposium on Nutrition and Our Changing Lifestyle. This symposium will be held on Saturday, November 4th, 1989 at the World Trade Centre Convention Centre, Singapore.

The objectives of this symposium are to inform and update the health and nutrition-related professionals as well as interested members of the public on the current key issues in nutrition and lifestyle.

The organizing committee has put together a most interesting scientific programme covering the current topics in the field of food, nutrition and health. All invited speakers are very proficient in their areas of expertise. The programme will feature some internationally renowned nutritionists from the U.S. and the Asian region. There will also be a trade exhibition for selected companies to display and provide information on their "healthier alternative" food products.

We hope the medical and health professionals, food scientists, food technologists, home economists and the general public will register to make this symposium a success.

Susani K Karta
President
Singapore Dietitians' Association

Registration fee:

Full members of SDA	$50.00
Affiliate members of SDA	$60.00
Non-members	$80.00
Late registration (after 27th Oct 1989)	$95.00

Symposium Organising Committee

Lynn Alexander	— Chairperson/Finance
Susani K Karta	— Scientific Programme
Fatimah Lee	— Social
Yeong Boon Yee	— Publicity
Magdaline Cheong	— Trade Exhibition

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Symposium on Nutrition and our Changing lifestyle

Organised by Singapore Dietitians' Association

World Trade Centre Convention Centre Conference Hall I & II

Saturday, 4 November, 1989

Programme

8.00 am : Registration
8.30 am : Participants to be seated
8.45 am : Welcome Address by Mrs Lynn Alexander, Chairperson, Organising Committee
8.50 am : Introduction by Ms Susani K Karta, President, Singapore Dietitians' Association
8.55 am : Opening Address by Dr Dixie Tan, Guest-of-Honour
9.00 am : Keynote Address : Nutrition and Lifestyle — Present Status, Future Directions by Johanna : T Dwyer, D.Sc., R.D., Director, Frances Stern Nutrition Centre, New England Medical Centre Hospitals, Boston, and Professor, of Medicine (Nutrition), Tufts University, Boston, Massachusetts, USA.
9.45 am : Welcome Reception
Opening and Viewing of Exhibition

Master-of-ceremonies : Mrs Evelyn Fong

Session I : Nutrition Strategies for Lifestyle Diseases

Chairpersons : Prof Darwin Karyadi (Indonesia)
Ms Chai Kwok Hoey, RDS
10.15 am : Practical Lifestyle Changes for Reducing Cardiovascular Risk
Assoc Prof Maurice Choo
10.35 am : Diabetes Update : Strategies for Treatment
Dr John Tambyah
10.55 am : Therapeutic Diet Guidelines : A Practical Approach
Prof Kraisid Tontisirin (Thailand)
11.15 am : Discussion

Session II : Panel Discussion

Chairperson : Dr Johanna T Dwyer (USA)
11.30 am : Nutrition in Preventive and Therapeutic Medicine: Strengthening the Bonds between Health Professionals
Members of Panel

— Nutritionist/Dietitian — Nutritionists/Dietitians as Communicators of Nutritional Information
Mrs Lynn Alexander, RDS
— Physician — Therapeutic Nutrition in Hospital Care
Dr Peter Yan
— General Practitioner — Preventive Nutrition in Family Medicine
Dr Goh Lee Gan
— Nurse — Nutrition Education Programme in Polyclinics
Nursing Officer Tan Miah Huan
— Public Health Nutritionist — Linking Nutrition with other Health Professions
Mrs Tan Wei Ling, RDS.

12.30 pm : LUNCH
(Viewing of Exhibition)

Session III : Nutrition in the Formative Years

Chairpersons : Dr Siak Chong Leng
Mrs Yeong Boon Yee, RDS
1.30 pm : Problems in Infant and Child Feeding
Prof Kraisid Tontisirin (Thailand)
1.50 pm : Prevalence and Significance of Childhood Obesity in Singapore
Dr Ho Ting Fei
2.10 pm : Childhood Nutrition Education Programmes — A Regional Update
Dr Shirley C Chen (Japan)
2.30 pm : Discussion

Session IV : Promoting Wellness in a Progressive Society

Chairpersons : Dr Peter Yan
Mrs Helen David, RDS
2.45 m : Changing Lifestyle in Modern Singapore
Dr Oon Chong Hau
3.00 pm : Aging Awareness : Update on Nutrients and Aging
Prof Darwin Karyadi (Indonesia)
3.20 pm : Nutritional Issues in Women's Wellness
Prof F H Maurine Tsakok
3.40 pm : Discussion
4.00 pm : TEA BREAK
(Viewing of Exhibition)

Session V : Marketing Nutritional Messages in the 1990's

Chairpersons : Dr Shirley C Chen (Japan)
Mrs Sue Hixson, RDS
4.20 pm : Nutritional Forces in the Market Place
Mr Garry Wainscott (Thailand)
4.40 pm : The Psychology of Advertising Nutritional Products
Mr David Miller
5.00 pm : Future Directions for Nutrition and the Food Industry
Ms Susani K Karta, RDS
5.20 pm : Discussion
5.35 pm : Closing Remarks by Mrs Lynn Alexander, Chairperson, Organising Committee

Dietary Guidelines To Lower Cancer Risk

Just what is the link between diet and cancer? Scientists believe that many cancer cells in the body are first produced by exposure to chemicals and other elements in the environment. It is thought then that nutrients take over to affect the growth and development of these cells. Certain types of diets, with their distinctive nutrient intake, have been found to either promote or inhibit the growth of chemically caused cancers.

Can you eat better to lower your chances of getting cancer? The preliminary evidence from recent research work has led the expert panel on Diet, Nutrition and Cancer (convened by the National Academy of Sciences (NAS)) to recommend interim dietary guidelines that, if followed, may reduce the risk of cancer. Four of the six guidelines were directed to types of foods that should be consumed. They are-

1. **Reduce the intake of dietary fat to a level of 30% of total calories.**
2. **Increase the consumption of fruits, vegetables and whole grain cereals.**
3. **Consume salt cured, smoked and charcoal broiled foods only in moderation.**
4. **Drink alcoholic beverages in moderation.**

There is nothing revolutionary about these guidelines, but scientists suggest that these elementary steps may make a difference in the risk of developing cancer.

In sound nutrition, more is not always better. Nutritional exercises and imbalances may be related to other diseases. Balanced nutrient intake is the goal. While deficiencies of some vitamins and minerals — such as Vitamin A, C and selenium — have been shown to be associated with a higher cancer risk, there is no evidence that consuming of these nutrients beyond the amounts found in a balanced diet is helpful.

The NAS Committee points out that there is no guarantee that adherence to this diet will eliminate all chances of developing cancer. However, these guidelines are consistent with good nutrition and they are likely to lessen the chances of getting other chronic diseases.

1. Reduce the intake of dietary fat

Scientific research has repeatedly shown an association between the amount of dietary fat consumed and the incidence of breast, large bowel and prostrate cancer.

Some good ways to reduce the amount of fat eaten include:

- bake, broil or boil, rather than fry.
- trim excess fat off meat.
- limit the use of butter, cream, salad dressing, margarine, lard, shortening and oil.
- check the labels of prepared foods for fat content.
- use less cooking oil and fats than called for in recipes.

2. Increase the consumption of fruits, vegetables and whole grain cereals

Consumption of foods high in beta-carotene (which is converted to vitamin A after consumption) have been shown to be associated with lower rates of most cancers. Foods rich in vitamin C appear to offer cancer inhibiting benefits for cancers of the stomach and oesophagus. Selenium and vitamin E have also been associated with lower risk of several cancers.

These are some wholesome sources of these nutrients:

- Beta carotene: dark green and deep yellow vegetables, cabbage, spinach, carrots, broccoli, tomatoes and brussel sprouts.
- Vitamin C: citrus fruits, peaches, melons, green and leafy vegetables, tomatoes, cauliflowers, green peppers and sweet potatoes.
- Vitamin E: Whole grain cereals, wheat germ, soybeans, broccoli, leafy greens, spinach.
- Selenium: wheat germ, bran, tunafish, onions, tomatoes and broccoli from areas where the soil is rich in selenium.
- Dietary fibre: vegetables, fruits and whole grains.

3. Consume salt-cured, smoked and charcoal broiled foods only in moderation

Excessive consumption of smoked or salted cured foods may elevate the risk of cancer of the stomach and oesophagus.

4. Drink alcoholic beverages in moderation

Excessive alcohol consumption combined with cigarette smoking increases the risk of cancers of the mouth, oesophagus and larynx. It may also be a factor in the development of liver cancer.

Conclusion

The link between cancer, diet and nutrition is complex. Research will continue to unravel the many interactions which are known to occur between nutrients. These interim guidelines should help the public to modify their diets in the light of the present knowledge.

Source: Based on Interim Dietary Guidelines recommended by the Committee on Diet, Nutrition and Cancer, National Research Council, National Academy of Sciences.

Nutrition Week Activities

Organised By The Training & Health Education Department Ministry of Health, Singapore 7 – 13th April, 1989

Nutrition Week In Singapore

Everyone was talking about food and health when the Ministry of Health launched Nutrition Week (7 — 13th Apr 89) in conjunction with World Health Day. The theme — Eat Healthy, Choose Wisely.

Interest was generated well ahead with a weekly television quiz series involving pre-university students entitled "You've Got the Choice" which drew a large viewership. The seven week series set the stage for other activities for Nutrition Week.

Healthier Menu Choices

Fifty-one restaurants responded to the Ministry's invitation to offer healthier choices in their menus during the Week. These dishes were approved by the Ministry and ranged from the exotic to the simple. The participating restaurants, which included Western-style restaurants, and Chinese restaurants, prepared menu cards or attractive placemats to help customers make the healthier choices, their creative efforts adding to the Ministry's publicity. The positive public response has encouraged several restaurants to add the healthier choices to their permanent menu.

A Buying Guide

Customers at 55 supermarkets were guided to make healthier purchases by the display of attractive labels on supermarket shelves indicating those products with low fat, low saturated fat, low salt and high fibre. Flyers and handbills explained the meaning of these labels.

Guidelines For A Healthy Diet

Nutrition Week introduced to Singaporeans the guidelines for a healthy diet which had been drawn up by the National Advisory Committee on Food and Nutrition.

8000 copies of these guidelines were printed for health professionals and people in the food industry. For the public, the guidelines were modified into practical tips in a set of six pamphlets entitled "A Balanced Diet", "Weight Watching", "Low Fat Living", "Cutting Your Cholesterol", "High Fibre Fitness" and "Tastier Food". 850,000 copies were distributed at supermarkets (one type each day of Nutrition Week', community centres, workplaces, public libraries, government polyclinics, hospitals and nutrition education programme.

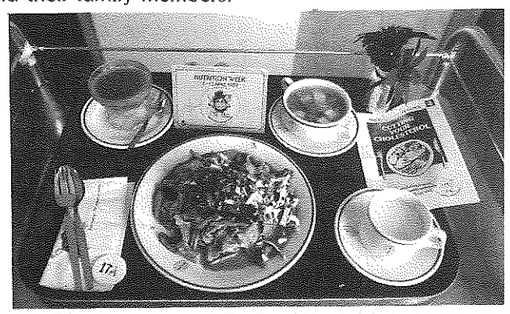
On The Media

A smiling Hearty, the familiar mascot of the Ministry's Healthy Heart, Healthy Life programme, now appropriately armed with a fork and spoon was the logo for Nutrition Week.

550 messages on TV, radio and the print media gave useful and practical information throughout April. Aided by the coverage given by journalists, food writers, radio and TV producers and letters in the press, they made an impact few Singaporeans could miss.

In Hospitals And Clinics

In-patients in a government hospital received a nutrition tip each day of the week, placed on their meal trays, to remind them to adopt healthier habits. A nutrition education exhibition has been touring ten polyclinics to reach patients and their family members.



Nutrition Education programme in Toa Payoh Hospital during Nutrition Week 1989.

Joint SDA and THE Department Symposium for dietitians at Marina Mandarin, 10th April 1989.

Starting Young

Children weren't forgotten, Audiotapes and lyrics of two nutrition education songs were distributed to 330 kindergartens and teachers were encouraged to teach the children the lively songs. Kindergartens also received 40,000 copies of a colouring book entitled "When We Go To The Supermarket" which introduced the children to healthy food choices.

Facilitators

To help disseminate and use the national nutrition guidelines, workshops and seminars were held for home economics teachers, occupational health nurses, dietitians and child care supervisors. Exhibitions and talks are being held at schools and workplaces, many at the request of these facilitators.

With coronary heart disease, cancers, diabetes and hypertension among the major health concerns, nutrition education programmes will be ongoing in Singapore.

Training & Health Education Department.

REPORTS:

The SEAMEO-TROPMED 2nd Seminar on Nutrition
Jarkata, March 20-21, 1989

SEAMEO-TROPMED (South East Asian Ministers of Education Organisation — Tropical Medicine) has been conducting a Regional Nutrition Course in Jakarta since 1970. Emphasis in this seminar was on community nutrition and the effects of urbanisation, as well as evaluating and revising the course. There was also a clinical session, covering topics such as hospital nutrition, nutrition and aging, nutrition and liver disease, nutrition in cancer and nutritional factors in cardiovascular disease. Speakers were largely from the ASEAN countries including Philippines, Malaysia, Thailand and of course Indonesia. A number of overseas speakers were invited, including Paul Nestel (Australia), Rainer Gross (West Germany), S. Jaime Rozovski (USA), A. Tomkins (UK), Mark Wahlqvist (Australia) and G.A.J. Hautvast (Netherlands).

The International (ASEAN) Symposium on Breastfeeding
Jakarta, 22 March, 1989

This meeting was hosted by the Working Board for the Promotion of Breastfeeding (Indonesia) and SEAMEO-TROPMED. Delegates from six ASEAN countries, including Singapore, participated and there were several renowned speakers from around the world, notably Derrick and Patrice Jeliffe (USA), Felicity Savage-King (UK) and Michael Gracey (Australia).

Some of the points emphasised at the Meeting were that for successful lactation the mother should be motivated to breastfeed as part of antenatal care. She should start breastfeeding immediately after delivery. The baby should room in with her and demand feed and she should give no prelacteal feeds of any sort — no milk feeds, no glucose water and no plain water. The baby should not be allowed to suck from a feeding bottle. These things are now being practised in many hospitals.

It is also necessary to provide the mother with emotional support and to help her get the baby to take the breast in a good position. Support and practical advice need to continue to be available also after the mother has left the maternity ward.

Some common myths were dispelled. For example, Felicity Savage-King had this to say about prelacteal feeds: "The term prelacteal feed refers to the practice of giving a baby feeds other than breast milk, usually from a bottle, before breastfeeding is established. Some health workers and mothers believe that a baby needs these feeds to prevent hunger and dehydration while waiting for the mother's milk to "come in". It has been found, however, that giving even one or two prelacteal feeds reduces the incidence of breastfeeding.

"We now know that normal babies do not starve or become dehydrated in the period before the mother's milk "come in". They are born with stores of water and glycogen in their bodies which are sufficient for several days. But mothers should not wait for the mature milk to come in. The baby needs to start sucking as soon as possible not to get a large volume of milk but to get colostrum and to stimulate the production of milk. Early frequent feeding helps the milk to come in sooner. Breastfeeding early also reduces the chances of such complications as engorgement and breast abscess, which cause much distress and which themselves often lead to breastfeeding failure."

Prof Derrick Jeliffe highlighted the immense biological and methodological difficulties in estimating breastfed infants' nutrient requirements, due to lack of exact information on the role of foetal stores and placental transfusion, as well the considerable variation between babies. The other half of the Jeliffe duo, Patrice Jeliffe, discussed community and national programmes to promote breastfeeding, based on her worldwide experience in touring countries as a breastfeeding advocate.

Lynn Alexander

The NutraSweet Company congratulates the Singapore Dietitians' Association on the occasion of their 5th Anniversary.

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The NutraSweet Company

Our Mission

The Mission of The NutraSweet Company is to bring better food choices to consumers through the application of advanced technology.

Two fundamental principles of our Mission Statement:

- Consumers trust our products to be helpful and safe. We will keep faith with them in everything we do.
- We will find and develop new products that meet evolving consumer needs for nutrition, healthfulness and enjoyment in foods and beverages.

Aspartame — A Safe Sweetener Alternative

Harriet H. Butchko, M.D. and Frank N. Kotsonis, Ph.D.

In 1965, something astounding happened. Jim Schlatter, a research scientist at G.D. Searle, was looking for an anti-ulcer drug. He licked his finger as he went to pick up a sheet of paper and by chance what he tasted revolutionized the food industry. It was a molecule composed of two amino acids, simple proteins found naturally in hundreds of common foods. When combined, these proteins create a substance two hundred times sweeter than sugar.

And that was only the beginning. This new discovery sweetened food and beverages with low calories, without promoting tooth decay and without the bitter after-taste.

That substance was aspartame. Fourteen years later, The NutraSweet Company (which evolved from the NutraSweet Division of G.D. Searle) began marketing this unexpected discovery as NutraSweet brand sweetener.

Aspartame has the sweet, clean taste of sucrose but with sweetness properties 200 times greater than sucrose (1). It is composed of two naturally occurring amino acids, aspartic acid and phenylalanine, the latter as the methyl ester. Because it is made from natural dietary amino acids, it provides four kilocalories (kcals) of energy per gram. Because of its intense sweetness, however, only small amounts are needed to sweeten foods, resulting in a significant calorie saving compared to sucrose.

A comprehensive safety testing programme over the last 20 years, including numerous scientific studies in both animals and humans, has documented that aspartame, even at doses far exceeding possible human consumption, is safe (2). In addition, aspartame has been shown to be safe and useful in diabetic individuals since it has no effect on blood glucose control (3-5). These studies have been scrutinized by regulatory agencies throughout the world, including the U.S. FDA, the World Health Organization, the Scientific Committee for Foods of the European Economic Communities, the Health Protection Branch of Canada, and the regulatory bodies of over 70 other countries. The unanimous opinion is that aspartame is safe.

Metabolism

Aspartame, like proteins or sucrose, is metabolized and utilized by the body. Extensive metabolism studies in five animal species and humans have documented that aspartame is broken down in the gastrointestinal tract to its components (6). These components are then utilized by the body by the same metabolic pathways that are used when they are derived from other food sources. In fact, common foods such as milk, meat, eggs, fruits and vegetables contain much greater quantities of these components than foods sweetened with aspartame. For example, a glass of skim milk has approximately 13 times more aspartic acid and 6 times more phenylalanine than an equal volume of beverage sweetened with aspartame (7). Many fruit juices contain several times more methanol than equivalent volumes of beverage sweetened with aspartame (8).

Safety Studies

Over 100 safety studies have been conducted in both animals and humans. Pharmacology studies have documented that aspartame, in doses far exceeding possible human consumption, has no effect on the central nervous, gastrointestinal, endocrine, and reproductive systems or on the inflammatory response (9-13). From a comprehensive body of toxicologic tests, including acute toxicity, subchronic toxicity, chronic toxicity and carcinogenicity, teratology, fertility, reproduction, and mutagenicity studies, a no-observable-effect-level of greater than 2,000-4,000 mg aspartame per kilogram of body weight was established. In terms of sweetness, this level is comparable to an adult human consuming approximately 25,000-50,000 grams of sucrose per day.

In addition, chronic studies have been done in normal adults, children, and adolescents, obese individuals, both insulin-dependent and non-insulin dependent diabetics, and individuals heterozygous for phenylketonuria (3,4,15-18). No effects of aspartame compared to placebo were observed. The pharmacokinetics of large, acute doses of aspartame has also been investigated in humans. Peak plasma concentrations of its components were well within the safe range even after doses of aspartame up to 200 mg/kg body weight in normal individuals (19-21), the equivalent of approximately 2,500 grams sucrose sweetness ingested at one sitting, or 100 mg/kg in individuals heterozygous for phenylketonuria (22). Studies have also documented that children metabolize aspartame as well as adults (23). These studies have confirmed that humans can safely metabolize amounts of aspartame far exceeding those possible when foods sweetened with aspartame are consumed.

Consumption

The Acceptable Daily Intake (ADI) is used by regulatory authorities as a guideline regarding the amount of a food additive (mg/kg body weight/day) that a person can safely consume on a daily basis over a lifetime (24). The U.S. FDA has established an ADI for aspartame of 50 mg/kg body weight/day (25). The ADI for aspartame is the sweetness equivalent of the daily consumption of over 600 grams of sucrose for a 20 kg child. Data from food consumption surveys in the U.S., however, have documented that actual aspartame consumption in all age groups, including children, is well below the ADI — an average of less than 5 mg/kg/day at the 90th percentile of consumption (26,27).

Children, because of rapid growth, have daily dietary aspartic acid and phenylalanine intakes, on a mg/kg body weight basis, as much as four times greater than adults (28,29). Thus, the contribution of a given amount of aspartame

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to total dietary phenylalanine intake is actually proportionally less in children than it is in adults. Even with use of aspartame at the upper level of consumption, the aspartic acid and phenylalanine contributed by aspartame represent only a small percentage (only 0.5% and 1%, respectively) of a 9 year old child's normal dietary intake of these amino acids (29).

Conclusion

An overwhelming body of scientific studies, including both animal and human studies, has documented that aspartame is safe. The components of aspartame — the naturally occurring amino acids aspartic acid and the methyl ester of phenylalanine — are found in much larger quantities in common, everyday foods. These components are utilized by the body through the same normal metabolic pathways as when they are derived from common dietary sources.

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Dietary Practices of Singaporeans in Relation to Degenerative Diseases

Lynn Gourley Alexander[1], B.Sc. (Hons), RDS and Lee Hin Peng[2] AM, M.Sc. (PH), MFCM

It is timely to study nutrient intakes and the relationship between diet and disease in Singapore because of the changes in material affluence, disease patterns and food availability in the republic in the past three decades. This paper is a summary of the current evidence suggesting a role of diet in diseases in Singapore.

Changing disease patterns in Singapore

The past three decades have seen a dramatic rise in deaths from circulatory disorders and cancers (Table 1). Further, considerable changes in incidence rates of cancers at various sites have been observed (14). Rates of cancers of the oesophagus and stomach have been declining, whereas those of colon, rectum and breast have been increasing.

Data collected by the population-based Singapore Cancer Registry show an average annual increase of 3-6% for colon and 3-5% for rectum cancer over the 15 year period from 1968 to 1982 (13). Among Chinese populations worldwide, the Singapore rates for colorectal cancer rank intermediate between the low rates in Shanghai and the high rates in Hawaii and California. This strongly suggests that lifestyle related factors, including diet, may be implicated in the aetiology.

Obesity, a contributory risk factor for several diseases including coronary heart disease, hypertension and diabetes mellitus, is also increasing in Singapore. In 1983 it was estimated that about 2 per cent of six year olds, and 10 per cent of 11 year olds were obese. More than 65 per cent of those students who were obese or borderline obese had family histories of obesity (20). In a 1986 sample of 1,815 adults aged 15-64 years, 20 per cent were found to be overweight (ie weight 10 per cent or more above the desirable for height based on Jeliffe's standards), and 5 per cent were obese (20 per cent or more above desirable) (Tan, personal communication). These data are indications that obesity is a serious health problem in Singapore. The incidence of maturity onset diabetes appears to be rising too. Thai *et al* (1987) (25) found that the overall prevalence in Singapore had increased from 2% in 1975 to 4.7% in 1985.

Table 1: Proportionate mortality in Singapore by broad disease groupings, 1950, 1960, 1970, 1980 and 1986.

	Causes of death	1950	1960	1970	1980	1986
1.	Infective & parasitic diseases	21.5	8.8	6.8	3.4	3.1
2.	Neoplasms	2.8	10.4	15.1	21.0	22.8
3.	Endocrine, nutritional & metabolic diseases	2.8)	5.1	2.3	2.9	4.0
4.	Diseases of blood & blood forming organs	0.7)		0.5	0.3	0.2
5.	Mental disorders	0.1	0.1	0.1	0.2	0.1
6.	Diseases of the nervous system & sense organs	13.7	7.7	1.7	1.1	0.7
7.	Diseases of the circulatory system	6.2	10.6	27.0	34.4	35.0
8.	Diseases of the respiratory system	16.5	11.9	13.7	15.7	15.4
9.	Diseases of the digestive system	12.4	8.7	4.2	2.9	2.5
10.	Diseases of the genito-urinary system	2.0	3.0	2.2	2.9	2.7
11-15.	Other conditions*	8.3	11.8	6.4	3.9	5.5
16.	Symptoms and ill-defined conditions	9.0	16.9	12.0	4.1	2.0
17.	Accidents, poisonings and other violence	4.0	5.0	8.0	7.2	8.0
	Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Other conditions are:
11. *Complications of pregnancy, childbirth and the puerperium*
12. *Diseases of the skin and subcutaneous tissue*
13. *Disease of the musculo-skeletal system and connective tissue*
14. *Congenital anomalies*
15. *Certain causes of perinatal mortality.*

Source: Ministry of Health, Singapore, 1987.

Changes in food availability

Data on food availability in Singapore and other countries have been compiled by the Food and Agricultural Organization (FAO) since 1961 (4,5), and the Singapore data summarised by the authors (11). Food availability represents the amount of food reaching the consumer and is not necessarily equal to the amount actually consumed. It is estimated that the amount consumed is lower than that available by approximately 30%. Nevertheless, such data are a useful indicator of broad trends.

constituents. Furthermore, the finding is consistent with the fact that colorectal cancer rates are increasing contemporaneously with meat availability.

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Food groups — In the 20 year period from 1961 to 1980 there were increases in the supply of all the major food groups, with the exception of pulses (Table 2). The most remarkable change was seen in the supply of meat/offal, which increased by almost two and a half times, largely because poultry and pork became more available. Other substantial increases were seen for eggs (79%), animal oils and fats (72%) and fruits (61%).

Calories — the per capita calorie supply increased gradually from 2335 to 2938 over the period 1961-1983, representing an increase of 25%. The proportion of calories from protein remained fairly constant at 9-11 per cent, but that from fat rose from 16-22%, with a corresponding decrease in carbohydrate sources.

Protein — the supply of total daily protein rose by 34% from 55.5 to 74.5g per capita per day. Animal protein showed a greater rise than vegetable protein (a 52% increase compared to a 20% increase).

Fat — fat supply markedly increased by 67% from 42.8 to 71.5g per capita per day. Fat from vegetable products was up by 29% while that from animal products increased by a dramatic 92%.

Fibre — estimates of dietary fibre availability over the last two decades revealed an increase from 25.5 to 41.6g per capita per day. Cereals were the largest contributors of fibre to the diet, but the increase in fibre availability appeared to be due mainly to the greater supplies of vegetables and fruits.

Table 2: Singapore food supply per capita per day, 1961 to 1980.

Food group	Grams of food available				% change
	1961-65	1966-70	1971-75	1976-80	1961-80
Cereals	465.1	467.7	477.3	481.7	+ 3.6
Roots and tubers	77.0	76.5	79.3	87.2	+ 13.2
Sugar and honey	166.1	128.6	137.6	130.4	+ 12.3
Pulses	15.1	8.1	8.2	9.4	– 37.7
Nuts and oilseeds	5.8	6.5	8.3	9.1	+ 56.9
Vegetables	135.8	150.6	178.4	179.5	+ 32.2
Fruits	121.3	149.1	177.5	195.5	+ 61.2
Meat and offal	69.3	80.2	119.0	162.9	+135.1
Fish and seafood	93.1	120.1	132.7	94.1	+ 1.1
Eggs	15.0	18.2	22.2	26.9	+ 79.3
Milk	85.8	97.9	125.6	116.2	+ 35.4
Vegetables oils and fats	13.1	12.5	9.9	16.0	+ 22.1
Animal oils and fats	4.8	7.3	8.6	8.3	+ 72.9

Source: Lee and Gourley, 1986.

Food purchases in Singapore

In 1985, a survey of 40 Singapore Chinese households was performed (7), obtaining information on major perishable foods purchased for home consumption in the previous week. The housing type was recorded as a suitable factor to reflect affluence. Although an indirect measure it does not require questions of a personal nature on income to be included in the interview. The more affluent housing was considered to be the private or high cost public apartments, bungalows, semi-detached and terrace housing. The less affluent housing comprised low cost public apartments and kampong housing (traditional wooden housing, only one in the sample).

Weights of foods purchased per head in one week, were higher in the more affluent group for all food groups, with the exception of bread. The difference was significant for red meat/offal, poultry, vegetables other than green leafy, eggs and fruits. The differences were unlikely to have arisen from bias due to household size or proportion of food eaten at home as these were very similar in the two groups.

Food consumption in Singapore

In 1985, an investigation was conducted by the authors to measure dietary intake in 98 Singapore Chinese adults (35 males, 63 females) using three-day semi-weighed inventories. A food composition data base was compiled, based mainly on the FAO/USDHEW's Food Composition Table for Use in East Asia (1972) and supplemented with data from other sources (Wills *et al*, 1984, Siong, 1982 and Candlish, 1987).

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Mean daily intakes of 16 nutrients and energy were calculated for males and females. Results for selected nutrients and energy are given in Table 3. Mean energy intake in males was 2,125 kcals and in females 1,593 kcals. These are below the recommended daily dietary allowances (24) and the possibility of under-reporting cannot be ruled out. In particular fat intake appeared quite low, at 63g per day for males and 48g per day for females. Of all the nutrients measured, fat is without doubt the most variable and the most difficult to measure accurately, and it is hoped that further detailed studies of fat consumption can be performed.

The proportions of energy from protein (14-15%), fat (27-30%) and carbohydrate (56-58%) were close to those currently recommended by nutrition authorities (for example, US Senate Select Committee, 1977). Cholesterol in women was below, and in men just slightly above the recommended 300mg upper limit set by the US Senate Select Committee.

With respect to changes in disease patterns, it is noteworthy that dietary fibre intakes (aroung 13g) are considerably lower than those of around 30g which are recommended by some expert bodies (for example, Royal College of Physicians, 1980). The fibre comes mainly from cereal foods (52%) particularly rice (20%), with a large proportion from vegetables (33%) and smaller amounts from fruits (12%). Pulses, nuts and seeds contribute only 3% of the total fibre intake (12). Mean daily intakes of food groups and nutrients were compared among the more affluent and less affluent subjects (as indicated by housing type). Significant differences were observed between the two housing groups for intake of most food groups and point for further research into diet and disease, and to this end several case-control studies on diet and cancer have been initiated.

Table 3: Daily nutrient intakes in Singapore Chinese adults, 1985.

Nutrient	Males (n=35)	Females (n=63)
Kcals	2,125	1,593
Fat, g	63	48
Saturated fatty acid, g	24	18
Polyunsaturated fatty acid, g	8	7
Cholesterol, mg	322	267
Fibre, g	12.7	13.2
% protein energy	14	15
% fat energy	30	27
% carbohydrate energy	56	58

Source: Gourley et al, unpublished data.

Ongoing studies into diet and cancer in Singapore

Results will be available early next year from an ongoing study by the authors into breast cancer in Singapore Chinese females. Various hypotheses are being investigated, including a possible predisposing effect of high fat, protein or coffee intakes and a possible protective effect of long-term lactation.

The authors recently launched a case-control study on nasopharyngeal cancer (NPC) among Singapore Chinese. In particular this study is exploring the role of salted fish, which has been implicated as a risk factor in Hong Kong (28), Malaysia (1) and China (29). The study is also investigating the intake of other preserved food and possible protective effects of vitamins C and E.

Results of a third study, into colorectal cancer, are now available (15), and are discussed below.

Study into colorectal cancer and diet in Singapore

A case-control study on colorectal cancer and diet was conducted by the authors between 1985 and 1987. The case sample comprised consecutive incident cases admitted to Singapore General Hospital. Controls were selected from the eye and orthopaedic wards in the same hospital. Roughly twice as many controls as cases were selected within five year age groups for each sex.

A total of 203 cases (132 colon, 77 rectum) and 425 controls were successfully interviewed. A history of the subject's usual dietary intake one year prior to interview was obtained using a quantitative food and dishes. Items selected contributed around 80% of the intake of the nutrients of interest. Frequencies of once a month or more often were included and quantities described by subjects in relation to a standard portion. Photographs of food items and common bowls and spoons used locally were used to aid in recall.

Mean daily intakes of nutrients and selected foods were calculated. For analysis, the intakes were categorised into low, medium and high intakes using the highest and lowest tertiles. Data were analysed by multiple logistic regression, and odds ratio relative risked estimated. All test and estimates were ajusted for age, sex, dialect group and occupational group.

Estimates were made of relative risks for nutrients and foods. For cancers of the colon and rectum combined, a

Table 4: Results of logistic regression analysis of effects of nutrient and food intakes on risk, by tertiles of control range, for colon and rectum cancer separately (all effects shown are significant at $p<0.05$, except meat to vegetables ratio), Singapore, 1985-87.

Risk factor	Category	Colon		Rectum	
		Odds ratio[1]	(95% CL)	Odds ratio[2]	(95% CL)
Protein	Low	1.00		1.00	
	Medium	1.40	(0.85, 2.30)	0.41	(0.20, 0.82)
	High	1.17	(0.68, 2.01)	0.61	(0.32, 1.18)
Fibre	Medium	1.41	(0.86, 2.33)	1.02	(0.55, 1.87)
	High	1.02	(0.59, 1.75)	0.46	(0.22, 0.96)
Beta-carotene	Medium	0.94	(0.56, 1.57)	0.42	(0.21, 0.82)
	High	1.08	(0.65, 1.78)	0.54	(0.28, 1.04)
Cruciferous vegetables	Medium	0.85	(0.53, 1.34)	0.79	(0.42, 1.46)
	High	0.47	(0.27, 0.81)	0.51	(0.25, 1.00)
Total vegetables	Medium	0.70	(0.42, 1.15)	0.48	(0.24, 0.93)
	High	0.79	(0.48, 1.28)	0.51	(0.27, 0.98)
Meat/ vegetables	Medium	1.18	(0.68, 2.04)	1.07	(0.53, 2.14)
	High	1.78	(1.07, 2.95)	1.67	(0.87, 3.20)

[1] *The test for linear trend was significant in colon cancer for cruciferous vegetables ($p<0.01$) and the ratio meat/vegetables ($p<0.01$).*

[2] *The test for linear trend was significant ($p<0.05$) in rectal cancer for fibre, beta-carotene, cruciferous vegetables and total vegetable.*

Source: Lee et al, 1989.

protective effect was observed of high cruciferous vegetable intake (odds ratio (OR) = 0.50, 95% confidence interval (CI) = 0.32, 0.78) and a predisposing effect observed of a high meat to vegetable consumption ratio (OR = 1.77, 95% CI = 1.15, 2.71).

Similar results were observed for colon cancer alone. For rectal cancer alone, significant (p 0.05) protective effects were observed for high intakes of protein (OR = 0.61), fibre (OR = 0.46), beta-carotene (OR = 0.54), cruciferous vegetables (OR = 0.51) and total vegetables (OR = 0.51). (Table 4).

When further assessed by multiple logistic regression, tests for trend and assessment of risk in the more extreme highest and lowest quintiles of the control range, cruciferous vegetable intake and the meat to vegetable ratio were consistently significant. A particularly high relative risk was also noted in association with low coffee consumption (OR = 1.59 with p 0.05 for trend). No non-dietary variables investigated, a history of cholecystectomy increased the risk of both cancers combined (OR = 3.34, 95% CI = 1.18, 9.98) and colon cancer alone (OR = 4.39, 95% CI = 0.12, 10.77).

The finding on cruciferous vegetables is consistent with previous studies elsewhere (Graham *et al*, 1980; Haenszel *et al*, 1980; Manousos *et al*, 1983; Macquart-Moulin *et al*, 1986 and Colditz *et al*, 1985). One study (10) observed no protective effect of cabbage and other cruciferae, but a lowered risk with high green vegetable intake. The agents in cruciferous vegetables thought to be responsible for the protective effect are indoles (26).

Several different cruciferous vegetables are commonly eaten by the Chinese in Singapore. This study estimated intakes of round white cabbage, large and samll varieties of Chinese cabbage (pai tsai), Chinese flowering cabbage (chye sim), cauliflower, broccoli, kale (kai lan) and mustard greens. These vegetables accounted for 49% of the intake of vegetables included in the study and 33% of the total vegetables consumed in the 3-day dietary survey (Gourley, unpublished data).

There is prior evidence for a predisposing effect of high meat consumption (10,9) and high meat to vegetable ratio (17). Such a ratio effect is clinically quite credible in view of the possible presence in cooked meat of potential carcinogens, and the postulated effects of certain vegetable

Acknowledgements

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This paper was presented at the SEAMEO-TROPMED Second Seminar on Nutrition, Jakarta, Indonesia, 20th — 21st March 1989.

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Singapore Dietitians' Association
President's Report, 1988 — 89

Executive Summary:

It has been a progressive year for the Association and the dietetic profession. Food, health and nutrition are becoming common topics within the community and the media. In this 1988/89 year, the Association continues to grow in its activities and membership. The SDA organized 6 professional and educational programs. To promote the professional image of the dietetic profession, the SDA successfully organized several nutritional and educational programs for the public and a series of lectures for general practitioners. The first position statement of the SDA on Dietary Recommendation for Individuals with Diabetes Mellitus was published. The Association is currently working to establish a standard for the diabetic exchange list and formulate guidelines for the registration of dietitians.

1. The 1988/89 Central Committee

The Committee was elected to office at the 5th Annual General Meeting on April 23, 1988. Committee members elected were:

President	Ms Susani K. Karta
Vice-President	Mrs Helen David
Secretary	Mrs Anna G. Jacob
Treasurer	Mrs Evelyn Fong
Committee Members	Ms Chai Kwok Hoey
	Mrs Magdalin Cheong
	Mrs Nancy Evans
	Mrs Yeong Boon Yee
	Mrs Myriam Yong

Twelve meetings were held by the 1988/89 Central Committee.

2. Membership

The Association's membership grew this fiscal year compared to the previous years:

	1986/87	1987/88	1988/89
Full members	30	29	34
Affiliate members	30	29	34
Honorary members	—	—	—
Total membership	53	52	57

3. Professional/Education Meetings

Six professional activities have been successfully organized:

a. Yakult Plant Tour, September 17, 1988 — attended by 30 people.

b. Dr Ang Peng Chye of Ang & Kong Clinic — Spoke on "Behaviour Modification"; attended by 15 people on October 1, 1988 at Mount Elizabeth Hospital.

c. National Heart Week 1988, Medical Forum — Organized by the Singapore Heart Association; Update on Cholesterol attended by 12 SDA members on December 11, 1988, Pan Pacific Hotel.

d. Mr David Bian of CIAS — Catering Department of NUH — Presented a talk on "Hospital Catering"; tour of CIAS by 34 participants on January 28, 1989 at CIAS, Changi Airport, sponsored by CIAS.

e. Abbott Laboratories' slide presentation on "The Nutritional Principles of Nasogastric Tube Feeding", attended by 28 participants on March 1, 1988, at Mount Elizabeth Hospital, sponsored by Abbott Laboratories.

f. Symposium on "Emerging Challenges for the Dietetic Profession", jointly organized by the Training Health Education Department, Ministry of Health and SDA; atended by 53 participants on April 10, 1989 at Marina Mandarin, sponsored by Abbott Laboratories.

4. Gerontological Society

A working committee was formed to discuss the paper on the views of the dietetic professionals on the problems faced by the profession to provide care for the elderly in Singapore and possible solutions. The paper on SDA's recommendations to the Advisory Council on the Aged through the Gerontological Society was written and submitted by Mrs Anna Jacob.

5. Toa Payoh Health Promotion Centre

The SDA assisted the centre in getting a speaker, Mrs Thio Yee Hui for the following program: Ante Natal Class, June 17, 1988; Diet for Diabetics Class, August 26, 1988.

6. Singapore Broadcasting Corporation

Mrs Helen David was on the SBC program, Action for Health, which was telecast on July 31, 1988.

7. Conference on Disease Prevention and Health Enhancement

The SDA was unable to accept Nestle's proposal to sponsor 3 participants from its Position Paper Committee to attend the above conference as the sponsorship was non-transferable. The SDA sponsored Ms Evelyn Fong to the conference. Her report on the conference was published in The Singapore Dietitian, September, 1988 issue.

8. The Singapore Dietitian

A new printer, Lolitho, has been appointed for better service and quality of printing. The Editorial Committee chaired by Mrs Lynn Alexander and coordinated by Mrs Anna Jacob continues to do an excellent job in maintaining the publication's professional image.

9. Public Education Committee

Chaired by Mrs Yeong Boon Yee, The Straits Times requested articles from the SDA. In an effort to boost contributions, the writer for any of the articles will receive 80% of the fee; the other 20% is to be retained by the SDA. The publishers of "Health Digest" have engaged SDA to contribute to the editorial of this new publication. Mrs Lynn Alexander and Mrs Anna Jacob have contributed an article each on behalf of the SDA. They received $250 each, 20% of which will be retained by the SDA.

10. Health Promotion Committee

Chaired by Mrs Evelyn Fong. This Committee organized and conducted the "Countdown Cholesterol Workshop" at the Toa Payoh Health Promotion Centre. The workshop consisted of 5 consecutive weekly programs, from March 31 — April 28, 1989. The topics and speakers for each of the modules were as follows:

Session 1: Introduction: How does high blood cholesterol affect your health? — By Mrs Yeong Boon Yee (March 31, 1989).

Session 2: Fact on fats. How to cut your fat intake — By Mrs Tan Shok Eng (April 7, 1989).

Session 3: Know the different types of fat in your diet. How to replace the more harmful fats — By Mrs Evelyn Fong (April 14, 1989).

Session 4: How to reduce your cholesterol intake — By Ms Ho Fong (April 21, 1989).

Session 5: Fibre; how do fibres contribute to health; how can you increase fibre intake — By Mrs Anna Jacob (April 28, 1989).

The sessions were very successful with 30 participants attending. The fees for the five sessions were $75 per person and $120 per couple. This first cholesterol workshop was targetted at participants with a high level of blood serum cholesterol. The second workshop is open to all interested parties and will be held from July 7 to August 4, 1989. Ten percent of the net income will be retained by the SDA and the rest will be divided among all the dietitians taking part. All materials made by the Committee will be the property of the SDA.

11. Career Week '89

Mrs Evelyn Fong presented two talks on Profession of Dietetics, March 11 and 12, 1989 at Career Week '89. This event was organized by the Singapore Professional Centre.

12. Membership

At the request of our members, the SDA printed membership cards to be issued to all full members, effective next fiscal year, 1989/90. Upon renewal and payment of the full membership subscription fee, the Honorary Treasurer will issue the card.

13. National Heart Week, 1988

The Singapore Heart Association (SHA) invited the SDA to participate in the above event. The SDA conducted a workshop for the public on "Cholesterol Countdown", December 15, 1988 at the Pan Pacific Hotel. It was a great success and was attended by about 300 participants. The workshop was chaired by Ms Susani Karta.

The speakers for the workshop were Dr Amy Ng, Cardiologist of the Singapore General Hospital and SDA's full members: Ms Ho Fong, Mrs Chia Kwok Hoey and Mrs Anna Jacob. Ms Susani Karta presented a paper entitled "Dietary Treatment of Hyperlipidemia" at the Medical Forum — Update on Cholesterol, December 11, 1989 at the Pan Pacific Hotel.

14. Position Papers

The Position Statement on Dietary Recommendations for Individuals with Diabetes Mellitus was finalized and published in The Singapore Dietitian, September, 1989 issue. The Diabetic Society was informed of our concern and disagreement over the teaching of the "80 calories portion" for diabetic patients.

A new Position Paper Commtiiee has been formed to formulate the exchange list for use in teaching diabetic patients. Mrs Thio Yee Hui has agreed to chair the Committee.

15. Nutrition Education for General Practitioners

Coordinated by Mrs Yeong Boon Yee and Mrs Myriam Young and sponsored by Nestle. The SDA has agreed to organize a series of lectures for general practioners. The first lecture was on Nutritional Recommendations for Diabetes Management by Mrs Thio Yee Fui, April 20, 1989 at the Yio Chu Kang Community Centre. Fifteen general practitioners and eight dietitians attended the talk which was received favourably.

16. Registration of Dietitian's Committee

Chaired by Ms Chai Kwok Hoey. The Committee was formed to undertake the task of formulating a professional registration system for the profession of dietetics and nutrition in Singapore and to make recommendations for requirement of continuing education for maintenance of registration.

17. National Nutrition Week '89

The SDA received a placque of appreciation from the Training, Health and Education Department (THE), Ministry of Health, for its participation in Nutrition Week. The SDA and THE jointly organized the symposium for dietitians during Nutrition Week. Ms Susani Karta was asked to sit on the selection committee of advertising companies developing promotional materials for Nutrition Week. Mrs Yeong Boon Yee represented the SDA as a member of the judges' panel for evaluating the "Healthier Choice Menu" submitted by hotels and restaurants.

18. The 14th International Congress of Nutrition, 1989, Seoul

The SDA has selected Mrs Lynn Alexander to be the Association's representative to the Congress. She will be sponsored by Nestle. Wyeth has offered another sponsorship for a representative to the Congress. The SDA has asked Abbott and Bristol-Myers to sponsor other dietitians to the Congress. They have agreed to sponsor individual dietitians based directly on their own merit.

19. The 3rd Asian Pacific Symposium Cardiac Rehabilitation, 1991, Singapore

The SDA has accepted an invitation from the organizers of the symposium, Academy of Medicine, Singapore to be the affiliated organization. Ms Susani Karta has been invited to represent the Association in the organizing committee.

20. SISIR's Project on Local Food Nutrition Analysis

The SDA has been approached by SISIR to provide suggestions for this upcoming project.

21. Proposed Programmes for 1989/90

21.1 Position Paper Committee will formulate the exchange list for use in diabetic teaching.

21.2 **Registration Committee** will finalize the criteria for obtaining and maintaining the registration status.

21.3 The SDA's representative to the Board of Trustees of the **Singapore Professional Centre** will be Ms Chai Kwok Hoey and Ms Susani Karta.

21.4 **The 14th International Congress of Nutrition 1989, Seoul** — The SDA will be organizing a team of delegates to this Congress, August 20 — 25, 1989. The SDA will try to contact the Korea Dietetics Association in arranging some technical visits to hospitals and various food service and nutrition organizations.

21.5 **Constitution Revision**, if needed.

21.6 A Working Committee will be set up to review the "Guidelines for a Healthy Diet" recommended by the National Committee on Food and Nutrition.

22. Acknowledgement

The Association wishes to recognize the Central Committee and Subcommittee members who have been generous in volunteering their time and expertise to further the Association's goals of improving the dietetic profession and nutritional care to the public. The Central Committee would also like to record its appreciation to all members and food-related industries who have, in one way or another, rendered their invaluable support and assistance to the Association's activities.

It has been a very good year as we have worked together and worked hard. This has been a year of transition and accomplishment for the Association. With the support of our members, we can have an even better year ahead.

Sixth Annual General Meeting of the Singapore Dietitians' Association

From left to right: Mrs Anna Jacob, Ms Susani Karta, Mrs Helen David and Mrs Lynn Alexander at the Annual General Meeting.

The Sixth Annual General Meeting of the Singapore Dietitians' Association was held on Saturday 29th April, 1989 at the Le Meridian Hotel, Singapore. It was organized by Mrs Yeong Boon Yee and Mrs Magdalin Cheong.

The President's report for the year 1988 — 89 is reported in full in this issue.

Election of office bearers for the year 1989 — 90 was also held.

The Annual General Meeting was followed by a high tea.

14th International Congress of Nutrition

Seoul, Korea
20 — 25 August, 1989

Thirteen members of the Singapore Dietitian's Association attended the 14th International Congress of Nutrition, held in Seoul, South Korea, from 20 — 25 August, 1989. Nine full members of the Singapore Dietitians' Association were sponsored by local commercial companies.

SDA gratefully acknowledges the support of the following organisations:-

Nestle (Singapore) Pte Ltd
Wyeth-Ayerst International Inc
Dumex

for offering sponsorships to the association for three members.

Two of our full members presented papers at the free communication sessions (See pictures).

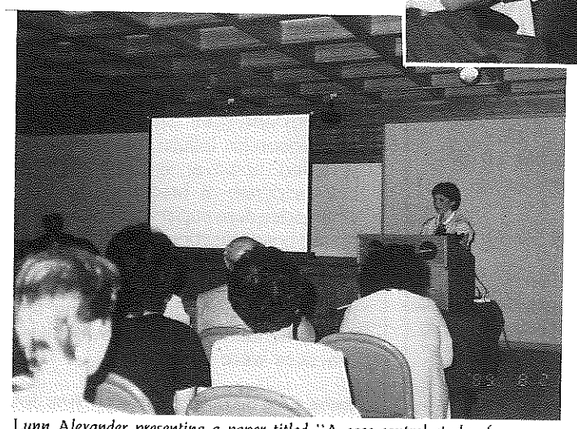
Our affiliate member Mrs Chan Yoke Yin presented a poster on "Weight reduction program at McPherson Primary School (project BEWARE)"

Visits were arranged by the American Soyabean Association to the Asan Medical Centre, Yongdong Severance hospital and Korean Dietetic Association after the Congress.

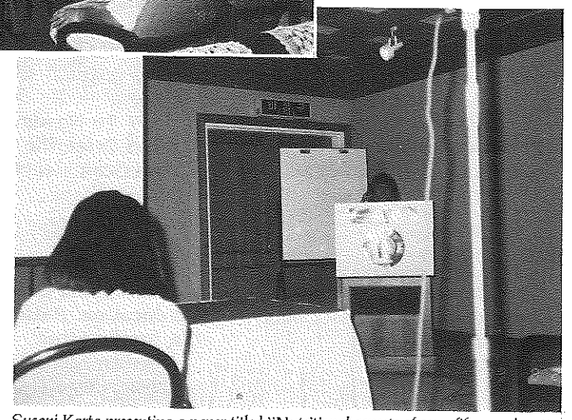
A fuller report of the Congress will be found in the next issue.

At the newly opened Asan Medical Centre, visitors were taken on a tour of the hospital and the excellent, spacious kitchen. It is staffed by 5 dietitians who attend to both the running of the kitchen and the counselling of patients.

At the Korean Dietetic Association Office, the headquarters of 5,000 registered Korean dietitians, our visiting team met with the office bearers and 7 full time dietetic staff.



Lynn Alexander presenting a paper titled "A case control study of colorectal cancer in Singapore Chinese".



Susani Karta presenting a paper titled "Nutritional aspects of soya fibre products".

Metabolism or Appetite: Questions of energy balance with particular reference to obesity.

The treatment of obesity is one of the most difficult problems faced by dietitians. Part of the difficulty with treatment is that obese people have been persuaded that their metabolism is to blame and that there is little that they can do about their weight.

There are three main sources of evidence which have led to this 'defective metabolism' hypothesis. Firstly, there are the persistent claims by overweight people that they eat no more than their lean friends. Numerous studies have recorded similar levels of food intake in groups of lean and obese subjects, implying that the obese have a much lower caloric requirement per kilogram of body weight.

Secondly, there have been claims that many constitutionally lean people can eat as much as they wish and still not put on weight. The first of these reports established the concept of luxusconsumption or adaptive thermogenesis which suggests that there is a mechanism by which an excess ingested energy can simply be burnt off as heat, and that this process is more effective in lean than in obese people.

Finally, there has been evidence from small animal studies in which there is no doubt that energy-sparing defects can lead to obesity. Mice and rats carrying an obesity gene can develop gross obesity even when they are pair-fed with their lean litter-mates.

Measurements of total energy expenditure have shown no evidence of a metabolic defect in obese subjects leading to a reduced energy requirement. Energy expenditure per kilogram body weight is similar for lean and obese women. Total energy expenditure is higher in the obese consequent upon the greater body size.

A study from the University of Ulster in collaboration with the Dunn Nutrition Unit provides evidence that under-reporting of food intake among obese subjects is a more likely explanation of apparent low intakes than an defect in energy metabolism. This does not infer that pre-obese people are gluttonous but strengthens the belief that the primary defect in obesity lies in control of appetite and/or the control of fat (as opposed to energy) balance. Obscured changes in energy metabolism could then be secondary to the alternations in body weight.

Source: Journal of Human Nutrition and Dietetics Vol. 2, pg 95 — 104, 1989.

MEETINGS

2 — 6 October 1989
Diabetes Education Update
American Dietetic Association
Wichcta, Kansas

12 October 1989
Effective Patient Teaching
Diabetes Education Centre
New York

2 — 4 November 1989
The Challenge of Diabetes
American Dietetic Association
California

4 November 1989
Symposium on Nutrition and Our Changing Lifestyle
Singapore Dietitians' Association
World Trade Centre, Singapore
(See page 10 for details).

13 — 16 November 1989
62nd Scientific Sessions of the American Heart Association
Dallas, Taxas

16 — 19 November 1989
11th Annual Conference on Patient Education: Patient Education — a family affair
American Academy of Family Physicians
Kansas City

A Survey On Breastfeeding In A Local Private Hospital

Earlier this year a survey was carried out on 149 mothers in Gleneagles Hospital, Singapore to investigate the incidence of mothers who intended to breastfeed, and who had successfully breastfed in the past. As a follow up it was also determined how many of the mothers who initiated breastfeeding were still breastfeeding 6 weeks postnatally. The study also attempted to increase the incidence of successful breastfeeding by increasing knowledge on how to breastfeed and how to manage or prevent problems. This knowledge was imparted by an assigned staff Midwife and Maternity Floor Nurses.

Results showed that 71% of mothers intended to use breast milk as the maor source of infant feeding. Out of 80 multiparous mothers, 20 (25%) had previously succeeded in breastfeeding.

Out of 50 of the breastfeeding initiators who were contacted for follow up, only 5 (10%) were still breastfeeding at 6 weeks. Of these four were non-career mothers (full time housewives).

Reasons for previous breastfeeding failure in multiparous mothers were cited as insufficient milk supply (63%), end of maternity leave (15%), flu, antibiotics, Chinese herbs, ginger, sesame oil or wine (DOM) (13%), flat, short or cracked nipples (7%) and Caesarian section wound pain (3%).

The main reasons for failure in the current breastfeeding group were babies cried frequently/insufficient milk (40%) and end of maternity leave (27%).

The study demonstrated that increased knowledge about breastfeeding could in some way reduce the incidence of failure due to "insufficient milk", and also eliminated the taking of herbs and traditional dietary items as a reason for failure. The survey still revealed, however, a disappointingly low incidence of breastfeeding even when adequate supervision was given during hospitalisation. The study report concluded by looking into various hospital practices felt by the author not to be conducive to breastfeeding, and recommendations on improving these practices were made.

Source: Chee, S.J.H. The Professional Nurse, June — Aug.pp 19-20, 1989.