Singapore Dietitians' Association

The Singapore Dietitian

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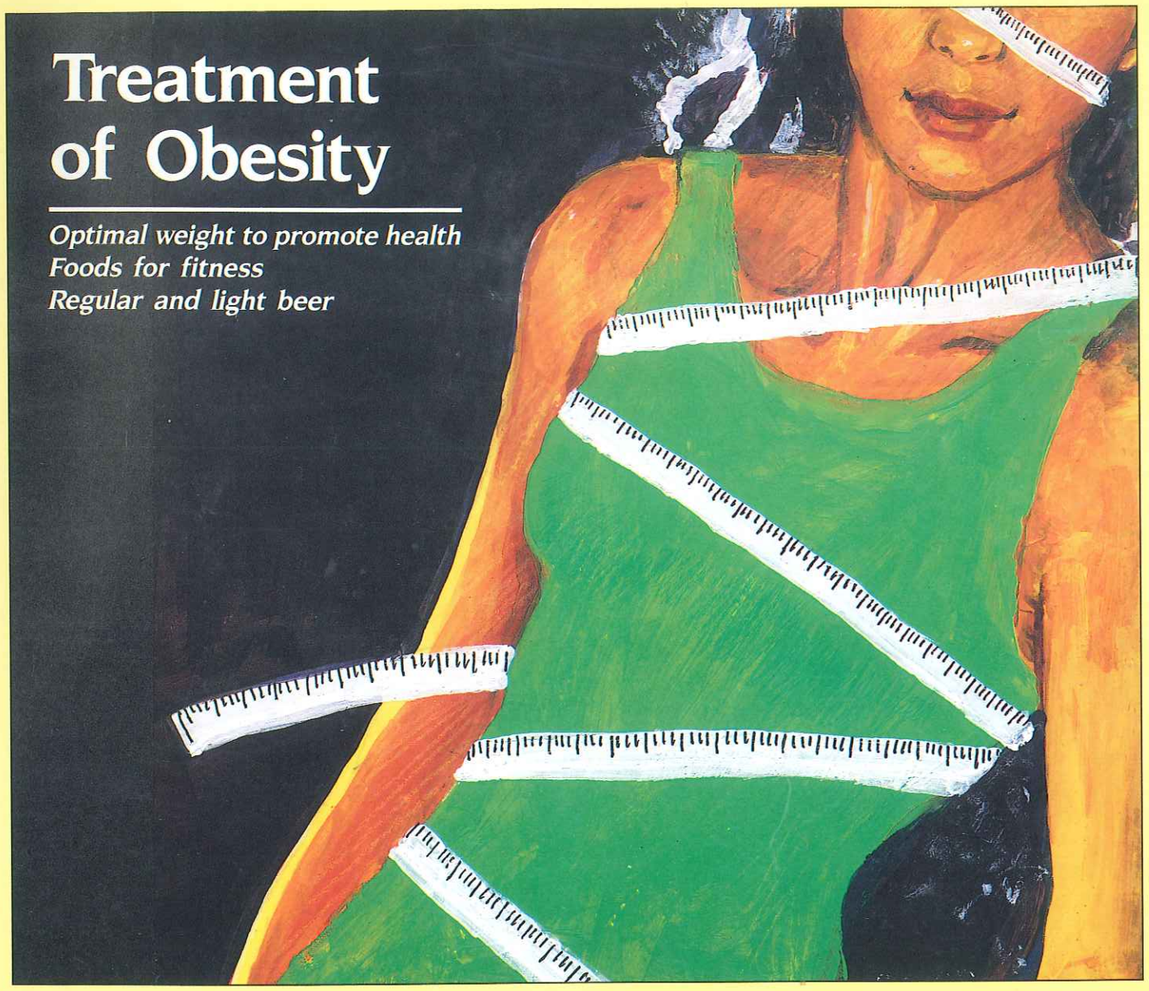
Treatment of Obesity

Optimal weight to promote health
Foods for fitness
Regular and light beer



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Singapore Dietitians' Association

21st March 1991

Dear Member,

THE SINGAPORE DIETITIAN, VOL.5, NO. 2

Sincere apologies for the delay in this issue of "The Singapore Dietitian", due to several unforeseen circumstances. The poster (mentioned in the Editorial) will be available shortly.

This will be the last issue of "The Singapore Dietitian" before it is revamped in light of the Association's recent change in name and constitution. We therefore look forward to new ideas and contributions from more of our members, to further enhance the objectives of our Association through the Journal.

Yours faithfully,

Lynn Alexander

Lynn Alexander
Chairman,
Editorial Sub-Committee

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The Singapore Dietitian

VOL. 5 No. 2 1990

Editorial...

As the campaign against obesity in Singapore National Servicemen and school children intensifies, we present another issue on this theme.

In the last issue, we looked at the causes of obesity. Here we review the treatment of obesity in an excellent article by one of our members. We also include a recent Position Statement of the American Dietetic Association, which discusses the health benefits of achieving and maintaining optimal weight.

As part of SDA's committment to health promotion through sound eating practices, we are pleased to enclose with this issue an attractive complimentary "Calorie Checklist" poster. We hope our readers will find it a useful aid in 'battling the bulge!"

CONTENTS

From the President ...

Evolving a Wider Role

At last April's AGM, an important decision was made, marking a major milestone in SDA's history. In view of the advantages of having a joint association for dietitians and nutritionists, it was agreed by the members that the Association should admit nutritionists as full members. Accordingly the Constitution and name of the Association would be changed.

This decision will benefit our profession in a number of ways:

a. There could be pooling of resources.
b. Expertise and potential would be maximised.
c. The image of both dietitians and nutritionists would be improved.
d. Collaboration would be facilitated, making for better use of management and time resources, and avoiding wasteful competition and duplication.
e. The Association would have a uniform voice on matters of nutrition and dietetics, and would be more accessible and easily identified as one body with the same objectives.
f. Possibilities of expanding horizons as well as promoting specialisations within the field would be enhanced, and clearer job definitions would be possible.
g. The Association would be in a better position to win recognition as the consultative body on nutrition and dietetics matters by both government and the public.
h There could be greater promotion of preventive nutrition.
i. The Association would have a stronger arm to push for licensing of dietitians and nutritionists to protect the public from unqualified persons.
j. The Associations' role as a watchdog of the media would be enhanced.
k. The Association would have greater capacity for carrying out community education, as well as influencing the industrial sector.
l. Awareness of the scope and role of dietitians and nutritionists would be raised among the medical and other allied professions.

The name change and constitutional amendments will be confirmed at a later date, once the proposed revisions have been approved by the Registry of Societies.

Meanwhile, SDA is playing a continued role in nutritional welfare of the nation through its representation by member Anna Jacob on the **National Committee on Prevention and Control of Obesity.**

I am pleased to report here the statements of the committee with respect to the role of SDA in implementing programmes/activities to help prevent and control obesity in schoolchildren and reservists in Singapore.

The main areas in which the help of dietitians would be a valuable asset in the implementation of the activities, selected by this committee are —

1. **Consultancy**
   Provision of consultancy to firms or organizations that prepare educational and public awareness materials, pamphlets, mass media campaigns and productions.
   Promotion of nutrition related activities at worksites, schools and community centres.
2. **Training of facilitators and food producers**
   SDA would be willing to work with the Department of Food and Nutrition to organize workshops for health professionals and food producers, speakers for the training of facilitators — eg. PE teachers, class teachers, and exercise workshop co-ordinators, who will be responsible for the weight reduction programmes in schools and at the work sites.
3. **Working with the media**
   SDA members can provide their services as speakers at forums, workshops and lectures, on healthy eating, weight reduction etc., for different target groups.
   SDA members can also contribute to magazines and newspapers to further the cause of weight reduction/ maintenance in the Singapore population.
4. **Production/vetting of educational materials**
   SDA hopes to produce suitable materials to support weight reduction and healthy eating, provided community support is available for the sponsorship of such activities.

The SDA hopes to work with the Department of Food and Nutrition, Training and Health Education Department, Singapore Sports Council, College of Physical Education in the implementation of some of the programmes. However, due to the small number of dietitians (most of them in full-time employment) our resources of time and effort will be limited.

Finally, looking to the future, SDA fully encourages the National Committee to recommend that adequate number of students are sent on scholarship to study nutrition and dietetics, at the earliest possible juncture, so that these students will be able to contribute substantially to the successful implementation of programmes in the future.

Evelyn Fong

Evelyn Fong, B.Sc., RDS,
President
Singapore Dietitians' Association

Treatment of Obesity

by Anna Jacob, M.Sc., RDS

Treating obesity is now recognized to be more than simply "dieting" to lose excess pounds. Instead, treatment tends to focus on the whole person, rather than just the extra weight that needs to be shed. Comprehensive treatment plans need to include the following factors: nutrition and diet education, exercise, behaviour modification, attitude modification, social support and maintenance support.

Obesity may be classified into three main types: severe, moderate and mild. This article will review the treatments for each type (see Table 1), concentrating on the more common **mild** form of obesity.

Table 1. Classification of Obesity

Type	Mild	Moderate	Severe
Percent overweight	20 — 40%	41 — 100%	100%
Treatment	Behaviour therapy (Diet, exercise modification)	Very low calorie diet and behaviour therapy	Gastric stapling

Source: A J Stunkard, Eating and its Disorders, (C) 1984, Raven Press, New York.

Severe Obesity

Severe obesity is defined as the condition of weighing more than double the ideal weight. Severe obesity is associated with serious medical complications.

The advent of surgical treatment for obesity has been one of the successful methods of bringing about and sustaining large amounts of weight loss in severely obese patients. The surgery called gastric stapling or gastric restriction procedure, involves radically reducing the volume of the stomach to less than 50 millilitres.

Only patients who have a history of repeated failures to lose weight by acceptable non-surgical methods and have been severely obese for at least 3 — 5 years, and are currently experiencing some medical complication from obesity, are allowed to undergo this type of surgery. These patients require lifelong follow up. Complications occur in 5 — 10% of cases, with mortality rates ranging from 0 — 3%.

After the surgical procedure, patients are required to eat less at each meal and to eat more often, eliminating liquids at mealtimes.

Moderate Obesity

Moderate obesity is defined as the condition of being 41 — 100% overweight. The amount of body fat is high enough to warrant special efforts under medical supervision. Treatment consists of a special diet and behaviour modification.

Anna Jacob is currently working as Dietitian in Eastshore Hospital, Singapore.

Some of the health problems linked to obesity

Obesity can:
— lower your life expectancy.
— enhance your risk of getting cancer.
— increase the possibility of diabetes.
— elevate your blood pressure and cholesterol level.
— lead to increasing your chances of a stroke, heart disease, as well as kidney failure.
— exacerbate respiratory problems.
— influence the risk of complications during pregnancy.
— pose extra risk during surgery.
— exert extra stress and strain on the heart, muscles and joints.
— limit your movements and make you more prone to injury.
— enhance the possibility of developing gall stones.
— contribute to menstrual problems.
— make you more susceptible to skin infections.
— hinder your self image.

Summarized by Kath Walsh.

The high proportion of body fat also demands the fastest weight loss that can be tolerated with safety and comfort.

Fasting as a form of treatment for these patients is an uncomfortable and ineffective method resulting in the loss of 40 — 50% of lean body mass, compromising on the health and appearance of the patient. However, in these cases conventional reducing diets of 1,200 or 1,500 kcals produce too slow a weight loss to be practical.

The most effective method for this category of patients is the Very Low Calorie Diet (VLCD) otherwise known as the Protein Sparing Modified Fast. The VLCDs' provide 400 — 700 kcals per day and are administered under constant and committed medical supervision. Eating protein is emphasised to help avoid loss of muscle tissue. Patients can use special formula beverages or natural foods, along with mineral and vitamin supplements. Patients tend to lose 3 — 5 pounds a week on the VLCD diet.

Unfortunately, these losses are poorly maintained unless special concerted effort is taken on the part of the dieter, under the guidance of a team of medical personnel including the dietitian, psychologist, exercise physiologist, and physician.

Mild Obesity

Mild obesity is defined as the condition of being 20 — 40% overweight and it is the most common form of obesity. For mildly obese individuals, a weight loss of about 1% total

body weight per week is optimal. Another goal is to lose primarily fat tissue and to protect lean body mass.

Conservative treatment for mild obesity involves three elements: diet, exercise and behaviour modification.

Diet

The whole concept of dieting can be criticized on psychological grounds, because, going on a diet implies going off it again later and resuming old eating habits. Therefore, the most effective diet is not to diet at all but gradually change eating patterns and shift to consuming food that a person can continue eating indefinitely.

There is no magical food or combination of food that must be either included or excluded. The dieter should be involved in working out his/her own meal plan as he/she will have to live with it. A diet can be called successful only if the pounds do not return and so the overweight individual must adopt it as an eating plan for life. The diet should consist of foods that the dieter likes and which are available and within the means of the individual.

An energy level that is acceptable to the individual should be selected. A deficit of 500 kcals per day for seven days is enough to lose a pound of body fat. It is best to achieve this by reducing food intake and increasing activity.

Nutritional adequacy of the diet is difficult for most people to achieve on fewer than 1,200 kcals per day. Greater prolonged success is expected with a smaller deficit than with a larger calorie deficit that creates starvation and deprivation, which can lead to an irresistable urge to binge.

To achieve nutritional adequacy care has to be taken to select adequate portions of low calorie food items that are rich in valuable nutrients, each day.

Unrefined carbohydrate foods of low energy density can be included in the calorie controlled meal. The dietary fibre content of unrefined carbodydrate, fruits and vegetables creates satiety and helps to decrease the feeling of hunger.

Careful selection of foods that are low in fat will help to lower the caloric content of the diet. It has been found that women offered diets of food similar in appearance and palatability, but varying in the percentage of calories from fat, did not adjust their food intake to compensate for calories.

Every conscientious dieter should record body weight once a week. A weight gain of 1 — 2 pounds that may be observed even while adhering strictly to the diet, is caused by a temporary shift in water weight. This "plateau" will break if the dieter steps up the exercise level and continues to adhere to the diet.

It is important that as much effort should be put into weight maintenance as weight loss. Frequent dieting alternating with weight gain leads to a reduction of healthy lean body tissue and a higher body fat content. This "yo-yo" effect of dieting makes the body adapt by increasing food efficiency — decreasing the metabolic rate, so that the same body weight can be maintained at a lower food energy intake than was required prior to the dieting cycle.

In the education process, dieters need to understand the basic concepts of diet education:-

1. Calories should not be overly restricted during the diet, because this practice reduces the likelihood of compliance. Calories should not be restricted below 1200 kcals, as it is hard to achieve nutrient adequacy below this level. A progressive weight loss of 1 — 2 lbs per week is considered safe.
2. No foods should be forbidden as it makes them more attractive and harder to resist.
3. Eating 3 meals and 1 or 2 snacks each day is crucial to minimize the feeling of hunger, as people tend to overeat when hungry.
4. Portion control is vital. Measuring and weighing food is important.
5. Variety, balance and moderation are crucial to satisfying all nutrient needs.

Meal Planning

Meal planning for dieters is really "nutritious eating" with emphasis on 6 major areas of change:-

1. Reduction of portion size.
2. Reduction on the emphasis of protein as the main component of the meal and highlighting complex carbohydrates as a desirable component of the meal.
3. Cutting down on the fat content of the diet.
4. Avoiding excessive use of sugar.
5. Inclusion of high fibre items in the menu.
6. Inclusion of healthy low calorie snacks in the meal plan.

Using an exchange list to plan a calorie controlled diet, helps to increase the variety and the individual choice within each category, ensure the adequacy of vitamin and mineral intake, and balanced consumption of carbohydrate, protein, and fat. Table 2 shows how meal plans may be constructed based on exchanges.

Exercise

Obese people tend to be less active that their leaner counterparts. The benefits of increased expenditure in a weight reducing programme are:-

1. Expenditure of calories from the exercise itself.
2. Elevation of resting metabolic rate following the exercise bout.
3. Protection of lean body mass.
4. Better appetite control.
5. Decreased risk of various diseases common to obesity.
6. Improved psychological well-being.
7. Increased stamina and muscle strength.

Exercise is a vital part of any successful weight reducing programme. People lose weight more efficiently when caloric intake is decreased and caloric expenditure is increased.

However, exercise programmes for a person who has been sedentary and overweight for a while, must be started slowly, with enjoyment and commitment as the main goals. A build-up in intensity and duration should be gradual and progressive, dependent to a large extent on how overweight the individual is. Beyond the exercise programme, obese people should be encouraged to schedule more activity into their daily routine.

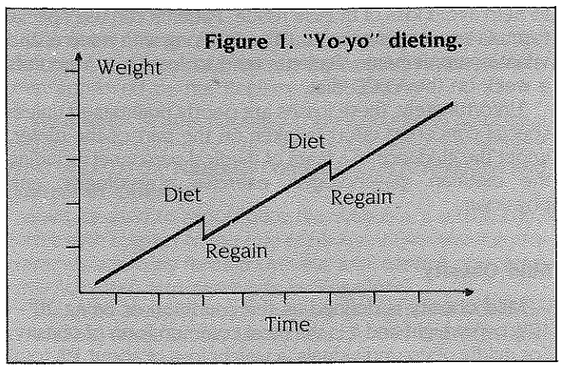

Figure 1. "Yo-yo" dieting.

Table 2. Standard Meal Patterns for Various Calorie Levels (Approximate Composition — 50% Carbohydrate, 20% Protein, 30% Fat).

	Number of Exchanges					
Calorie Level	Skimmed Milk	Vegetables	Fruit	Starch	Meat	Fat
1200	1½	3	2	6	5	2
1400	2	2	2	7	6	3
1500	2	2	2	8	6	3
1600	2	2	3	8	7	3
1800	2	2	3	9	8	4
2000	2	2	3	11	8	5
2200	3	4	3	11	9	5

Source: Jersey Shore Medical Centre Diet Manual, 1987, Neptune, N J.

Behaviour Modification

Behaviour modification deals with identifying and changing behaviours that affect weight gain. It is one widely used means of treatment for obesity and has been rated as the most successful method. Behaviour modification takes into consideration the details of the eating behaviour such as events that trigger overeating, and the consequences.

Elements of behaviour modification are self monitoring, stimulus control, eating behaviours, reinforcement or self-reward and self-control.

Self-monitoring involves keeping a food diary (see Table 3) or daily record of types and amounts of foods and beverages consumed as well as, time and place of eating, mood at the time and the degree of hunger felt. The purpose of the diary is to increase awareness of what is eaten and to identify if it is eaten as a response to hunger or some other external cue.

Cue or stimulus control: Through self monitoring, cues or stimuli to eating can be identified and behaviours that prevent these cues are learnt. Examples of behaviour modification techniques are:-

1. Food purchasing, storage and cooking:
   - Plan meals a week or more ahead.
   - Make a shopping list to avoid impulsive purchasing.
   - Do food shopping after a meal, that is on a full stomach.
   - Do not shop with someone who will pressure you to buy high caloric food items.
2. Mealtimes:
   - Do not serve food at the table or leave serving dishes on the table.
   - Leave the table immediately after eating.
3. Holidays and parties:
   - Eat and drink some food that is low in calories and filling.
   - Bring low caloric foods to the party.
   - Stay away from food as much as possible.
   - Concentrate on being social.

Eating Behaviours: Eating behaviours need to be modified to discourage overeating. Eating should occur only at predesignated locations to prevent constant and unconscious nibbling. Do not read or watch television while eating as associations can be formed between certain activities.

It is important to plan three meals and one or two snacks each day preferably at fixed times.

Obese patients should be encouraged to eat slowly, putting down the fork or spoon in between bites, taking time to chew and filling up with low caloric beverages. Food should be portioned out onto smaller plates so as to make it look bigger.

Self Control: Overeating occurs sometimes as a reaction to stressful situations, emotions or cravings. The food diary helps to identify these emotional cues. Learning to express these expressions verbally rather than by overeating is important. Positive self talk is recommended to develop self control and prevent overindulgence in food.

Self Rewards Or Reinforcement: It is important that rewards should be worked into the programme to encourage positive steps taken to lose weight. It is important not to use food as a reward, but some non food related encouragement that is appreciated by the individual for whom it is meant.

Attitude Modification

The most common attitude problem that overweight individuals have is thinking they are either on or off a diet. Dieting should not be so restrictive and with such unreasonable goals that a person cannot wait to go off the diet. Setting realistic goals is crucial to the success of any weight loss programme. Goals involving complex behaviour change can be broken down to a series of small successive steps.

Constructive attitude is critical to handling occasional lapses in the diet or behaviour change so that the obese individual does not give up in despair, but gets back to the programme without further delay.

Social Support

Obese people are likely to lose more weight when their families and friends are supportive and involved in the weight loss programme. Encouraging partners who support the dieter with praise and participation in good eating habits are essential to motivate the person on the low calorie meal plan.

Table 3. Food Diary.

Time	What Was Eaten?	Where?	How Much?	Hungry?	With Whom?	Mood

Maintenance Support

Only recently has maintenance support started to receive the attention it deserves as a crucial component of successful weight loss programmes.

Strategies that appear to support weight maintenance include:

- Determination of calories needed for weight maintenance and working out a liveable diet.
- Learning skills for dealing with high risk situations when a lapse in eating behaviour may occur and what to do when a relapse occurs.
- Continued self monitoring
- Continued exercise
- Continued social support
- Recognizing weight increases that are hard to control and the need to go on treatment.

Unfortunately, little is known about the factors associated with weight maintenance success or what is needed during the first few months of weight maintenance, when a majority of dieters begin to relapse, but it has been recognized that formal weight maintenance programmes are essential to provide support for the person who has lost weight and wants to keep it off.

In conclusion, for optimal results, the treatment of obesity should take a holistic approach and address each of the elements — nutrition and diet education, exercise, behaviour and attitude modification as well as social and maintenance support.

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Regular Beer and Light Beer — How Do They Differ?

by Annie Ling, Department of Food and Nutrition, Ministry of Health

Generally, 300 ml of beer contains about 10 to 11g of alcohol. One gram of alcohol yields about 29 kJ (7 kcal). In addition to the alcohol, average beers also contain carbohyrates in the form of sugars which contribute to the energy content. One gram of carbohydrate yields about 17 kJ (4kcal). However, for those who like an occasional beer but are also watching their waistline, light beer appears to be a wise alternative to regular beer. The energy content of light beer is approximately half that of regular beer (see table). A 300 ml mug of light beer has about 336 kJ (80 kcal) as compared to the 598 kJ (142 kcal) in regular beer.

Table 1: Composition of different beers, per average beer mug of 300g.

Beers	Energy (kcal)	Energy (KJ)	Carbohydrate (g)	Alcohol (g)
Beer, regular	142	598	13	11
Beer, light	79	336	2	10
Beer, bitter	96	403	2	10
Brown ale	84	353	8	10
Pale ale	96	403	6	6
Lager	88	370	5	10
Stout, regular	112	467	13	8
Stout, extra	118	494	6	13

(*Figures from McCance and Widdowson's: The Composition of Foods, 4th ed. 1976 and Pennington JAT, Church HN: Bowes and Church's Food Values of Portions Commonly Used. 13th ed. Philadelphia, JB Lippincott. 1980*)

Alcohol and carbohydrate content

The lower energy value of light beer results not from the alcohol content which is about the same between the two types of beer, but from the relatively lower carbohydrate (sugar) content. Of course, a possible method to get a light beer would be to dilute a regular beer. In this case all nutrients will be diluted, including the alcohol content. However, the taste may be unacceptable to some consumers. An alternative method is to monitor the brewing process itself.

Starting materials

The starting materials of both beers are basically the same, malted barley, maize, hops, yeast and water. The temperature at which malting or heating of barley is carried out will determine the final appearance of the brew. For dark beers, the heat is sufficiently intense to produce caramelization which gives the colour. Hops are added to impart the bitter flavour characteristic to beer. However, the colour and bitterness of beer is not an indicator of alcohol content (see table). Generally, the flavour distinctive to particular brands of beer is a result of varying combination of starting materials.

Brewing process

In a normal brewing process, the starches and sugars from the malt and maize will be fermented into alcohol and carbon dioxide by the enzymes in the yeast. Normally, fermentation takes place at approximately 7 to 10°C. Cooling to 0° will inactivate the yeast, hence stopping the process of fermentation. The extent of fermentation can be controlled by varying the temperature such that the amount of carbohyrates remaining in the beer can be monitored. This is basically what happens in the brewing of regular and light beers. For regular beer, the fermentation is stopped earlier and a certain amount of carbohydrates remain in the beer accounting for the relatively higher energy value. Light beer, on the other hand, starts off with a lower amount of malted barley, meaning that less carbohydrates are available for fermentation, but the fermentation process is allowed to proceed further, thus converting most carbohydrates into alcohol and carbon dioxide. In this way, the alcohol content is maintained at approximately the same concentration as that of normal beer but the sugar content is relatively lower.

Position Of The American Dietetic Association: Optimal Weight As A Health Promotion Strategy[1]

Various treatment modalities are available to control weight. They range from extreme approaches, such as surgery and very low-calorie diets, to conservative approaches, such as behavioural management. An individual's optimal weight can vary, depending upon several factors. Health care professionals, including registered dietitians, have a responsibility to provide information on achieving and maintaining optimal weight as preventive strategy. In addition, effective treatment plans based on current research to assist individuals in achieving their optimal weight are also the responsibility of nutrition professionals.

It is the position of The American Dietetic Association that the achievement and maintenance of optimal weight through sound eating practices and adequate exercise are an essential health promotion strategy.

Optimal weight is the most favourable weight for an individual as determined by a variety of factors, such as existing health problems (hypertension, diabetes, heart disease), percentage of body fat, location of excess fat in the body, age, sex, heredity, psychological implications, and realistic weight maintenance goals. For some persons, optimal weight will be more or less than the weight allowed by accepted weight-for-height tables. Patterns of sound eating practices and adequate exercise are of primary importance in achieving and maintaining optimal weight. When intervention is justified to reduce weight, it should focus on eating and exercise behaviours.

Current medical and scientific evidence supports the treatment of obesity and the promotion of strategies which prevent this disease. Treatment and prevention strategies must be thoughtfully designed and implemented to avoid a worsening of the preoccupation with weight and dieting, an overvaluation of thinness, and social prejudice toward the obese. Physical and psychological consequences of weight fluctuations may be more harmful than maintaining some degree of overweight (1,2). Chronic dieting can be self-defeating because of metabolic adaptations to periodic food restriction and possible reinforcement of poor self-esteem caused by repeated failures to control weight.

Background

There is evidence of increased prevalence of obesity in children, adolescents, and adults in the United States (3,4). Using the 1983 Metropolitan Life tables as reference, 25% of the United States population exceed desirable weight for height by 20% or more (5,6). Of the total female population, 35% exceed this standard. Gortmaker et al. (4) report the prevalence of obesity among children is approximately 25% (above 85th percentile of triceps skinfold). By comparing National Health and Nutrition Examination Surveys (NHANES) of 1963-70 and 1976-80, Gortmaker et al. found there was a 54% increase of obesity in children 6 to 11 years old and a 39% increase in those 12 to 17 years old. It appears that not only is the paediatric population getting fatter but the fatter members are becoming more obese.

Obesity is often accompanied by increased risk of health problems such as hypertension, coronary artery disease, and diabetes mellitus and presents psychological problems for the overweight individual (7). In many individuals, weight reduction has a favourable effect on these physical and psychological problems.

The Surgeon General's Report on Nutrition and Health (8) states:

The extraordinarily high prevalence of obesity in the United States — one-fourth of American adults are overweight and nearly one-tenth are severely overweight — coupled with its role as a risk factor for diabetes, hypertension, coronary artery disease and stroke, gallbladder disease, and some types of cancer suggests that a reduction in the average weight of the general population would improve the nation's health.

A review of several longitudinal studies of adults including the Framingham Heart Study, affirms that overweight people die sooner than average weight people, particularly those who are overweight during their younger adult years (9).

The 1985 National Institutes of Health Consensus Development Conference on the Health Implications of Obesity (10) concluded that, because obesity is related to an increased risk morbidity and mortality, treatment is recommended in circumstances of (a) excess body weight of 20% or more, (b) family history or risk factors for maturity-onset diabetes, (c) hypertension (d) hyperlipidaemia, (e) cardiovascular disease, (f) gout, (g) functional impairment, and (h) history of childhood obesity.

The disparity between actual weights and the sociocultural idealized body shape — characterized by extreme thinness — is causing many individuals to be preoccupied with weight and dieting. This promotes eating disorders in susceptible individuals and fuels a multimillion dollar fad diet industry (5).

The increased prevalence of anorexia and bulimia nervosa has been blamed, in part, on societal emphasis on thinness and weight control as a means to be physically attractive and socially acceptable (11). Anorexia nervosa can lead to morbidity and even mortality, particularly related to the endocrine and cardiovascular systems (12). There is almost always a relationship between bulimic behaviour and dietary restriction. Thus, nutritional guidance that normalizes food intake practices and body weight plays a key role in managing bulimia nervosa (13,14).

The current state of knowledge about the development, treatment, and prevention of overweight, obesity, and eating disorders — and how those conditions can be prevented and treated — indicates that these are multifaceted problems. Each individual, whether child or adult, is affected in a different way and thus requires strategies to meet his or her specific needs. Health care professionals, including registered dietitians, have a responsibility to provide accurate information and effective treatment based on the latest research findings to assist individuals in achieving their optimal weight.

[1]*Article reproduced with permission from The American Dietetic Association. First published in December 1989.*

Physiology, psychology, genetics, physical activity, family and community environment, societal expectations, and self-image are all factors that must be considered.

Physiological factors affecting weight

Obesity is defined as excess body fat. Because of difficulties in accurately measuring percentage of body fat, weight in relation to height has frequently been used to establish degree of obesity. Weight and height tables for adults, growth charts for children, and body mass index (BMI) (body weight expressed as a ratio of weight in kilograms to height in metres squared) all have some drawbacks but are the most generally used methods to determine degree of variance from the desirable weight for height (15). Skinfold measurement estimates fat more directly but requires training to make reliable measurements. The bioelectrical impedence analyzer (degree of fat resistance to conduction of electricity) also measures fat more directly but is currently appropriate only for research and needs more evaluation to determine its accuracy with obese persons (16,17).

Since obesity relates to excess fat rather than excess weight, the optimal weight for an individual can vary depending upon muscle mass and body frame. Persons who exercise extensively will usually have a higher proportion of muscle to adipose tissue, yet may be above desirable weight as indicated on most weight and height tables. Fully grown, well-nourished women have a higher proportion of body fat (26% to 28% of total body weight) than men (13% to 18%) (18). The higher proportion of fat for women is necessary for normal hormonal and reproductive functions (19).

The degree of obesity often correlates with the incidence of associated health problems (20). Using the 1959 Metropolitan Life Tables, Stunkard (6) proposes a classification of degrees of obesity based on probable health consequences. This classification and the prevalence among obese adults are as follows: mild obesity is 120% to 140% of desirable body weight and affects 90.5% of obese persons; moderate obesity is 141% to 200% of desirable body weight affecting 9.0%; and severe obesity is more than 200% of desirable body weight affecting 0.5% of the obese persons.

Current research supports the hypothesis that distribution of body fat may be a more important determinant of health risk than total body fatness (7). Fat distribution is classified as android (abdominal, "apple shaped") vs. gynoid (hips and thighs, "pear shaped") (15). A high degree of abdominal fat is indicated by a waist:hip circumference ratio (W:H ratio) greater than 0.95 in men (21) and is associated with a number of conditions, including noninsulin-dependent diabetes mellitus and cardiovascular disease, even though no association between generalized obesity and those diseases is evident (7,22).

In addition, it appears there are physiological differences between obese and nonobese individuals. For example, fat persons tend to poorly utilize fat in thermogenesis (23).

Basal and resting metabolic rates are lowered during weight reduction (24,25). With repeated weight reduction attempts, the lowered metabolic rate may not return to the previous rate when food restriction is discontinued (26). Brownell (1) has postulated that this is one reason why it is increasingly difficult to lose weight in succeeding weight reduction attempts (1).

The various mechanisms that defend elevated body weight suggest that a natural variation in adiposity should be tolerated, even if weight exceeds what is popularly considered to be desirable (27). Weight cycling, or "yo-yo" dieting, may have detrimental health effects (1). The determination of optimal weight involves realistic goalsetting as a key component of successful intervention.

Genetic and environmental factors affecting weight

A study of adults who were adopted as children showed that genetic influences have an important role in determining human fatness in adults while family environment has a lesser impact than previously believed (28). This influence appears to be exerted in adults from the very thin to the very obese classifications. The report concluded that it is important to focus prevention efforts on children and adults who are prone to obesity.

Longitudinal studies have found that fat babies are not necessarily destined to grow up as fat children (29), and there is a limited predictability of the development of obesity. It is usually best to delay calorie restriction until youths have had their pubertal growth spurts. Registered dietitians and other health professionals should concentrate on teaching normal eating and improving the feeding relationship between care-giving adults and the overweight child (30). Inappropriate weight control methods are more detrimental than allowing the child to be overweight (31). Family dynamics around eating affect the individual's ability to respond to internal cues that indicate he/she is satisfied and no longer hungry (30,32). A distorted feeding relationship and family stress may cause the person to eat too much and gain weight or to develop other kinds of eating disorders.

Dietary restrictions on children may result in intakes that are inadequate for normal growth and can result in failure to thrive (33), or they can lower basal metabolic rates and enhance fat storage by dieting (26). Binge eating and restrictive dieting are especially prevalent in adolescent and young adult girls and can result in health problems as well as seriously distort eating behaviour and even promote anorexia nervosa (34).

Television watching and obesity have been correlated in adolescents. One study concluded that television was such a pervasive influence and consumed so much time that children were unable to restore the balance between energy intake and expenditure (35).

Additional elements that indicate the environment has an influence on weight include the kinds of food available to the family, that spouses resemble each other in fatness levels, and that parent-child fatness correlations may decrease after children become adults and no longer live with their parents (36).

Prevention

The development of healthy eating behaviours at an early age should be the primary prevention strategy (31). Prevention of obesity requires an environment that encourages individuals and families to adopt appropriate eating and exercise patterns. Education programmes must also provide accurate information about nutrition and exercise that facilitates regular physical activity (31). Health professionals should monitor growth patterns and weight fluctuations of children and adults, respectively, to detect the onset of weight problems and recommend appropriate actions. Early referrals to nutrition professionals can assist clients to find the most cost-effective ways to deal with their weight problems.

Treatment

A variety of treatment approaches for weight control are available. More extreme approaches to intervention, such as surgery and very low-calorie diets, are among the options for the small proportion of the population who are severely obese (6,22). Conservative treatments that utilize sound nutrition, behavioural management, nutritional and psychological counselling, and exercise are considered more

appropriate for those who are mildly or moderately obese and are characterized by better maintenance of weight loss than extreme dietary restrictions (37-39).

Children of all ages who are mildly obese (75 to 89 percentile of weight for height) should be monitored by parents and health professionals (31). Intervention should not interfere with normal growth or promote the development of eating disorders (36, 40, 41). Improving family interrelationships and modifying eating behaviours are important components of treatment (30,41). Intervention programmes should: (a) be adaptable to individual needs, (b) develop nutritionally sound and family-oriented approaches and bring about positive behaviour modification, (d) be supportive of social needs, (e) include physical activity components, (f) be coordinated with medical care, (g) continue long enough to establish attitude and behaviour changes, (h) promote a positive attitude toward life and self, and (i) recognize that there is a wide range of acceptable body sizes and shapes (31).

Community approaches

Weight management for the public includes self-help and commercial groups, community programmes, and work-site programmes. High attrition rates are a major problem for self-help and commercial groups, although the approaches are effective for some individuals (37,42).

The work site may be the most promising location for community-based health behaviour programmes, including weight control programmes (43). Work-site exercise facilities and low-fat, low-calorie food choices in employee cafeterias are appropriate environmental elements to encourage. The registered dietitian should serve as a major resource for working with the public.

Cost-effectiveness

The reported cost of weight reduction varies depending on the type, length, and location of the programme; the type of professional staff; the use of materials and equipment; and whether monitoring by laboratory tests or physicians is performed. In studies of weight reduction recently reviewed, costs per client ranged from $41.93 to $288.66, and costs per pound lost ranged from $5.37 to $15.57 (44). In comparison with the cost of treating disease that may develop in conjunction with obesity, weight management is economically sound. Psychological needs should not be overlooked when considering the costs of obesity and weight reduction to the individual.

Summary

The American Dietetic Association supports the concept of optimal weight that considers a variety of factors to determine the most favourable weight for the individual. Adequate research exists to support the following:

- The prevention of obesity in children and adults through nutrition and health education should be a primary objective for registered dietitians and other health care professionals.
- Optimal weight for individuals should be determined by considering health risks, heredity, age, sex, percentage body fat, and realistic goal-setting.
- Children should not be placed on restricted-calorie diets; rather, efforts should be made to encourage the child to be physically active, to eat a well-balanced diet, and to return to internal control of eating. Also, normalization of the feeding relationship between parent and child is important.
- Weight control programmes should include behavioural management techniques for food intake, exercise, stress, and improved self-esteem. The programmes should focus on loss of body fat and avoidance of repeated diet failures.

Healthful behaviours that can prevent and reduce the incidence of obesity should be encouraged by registered dietitians and other health care providers, educators, the food industry, insurance companies, employers, school programmes and families.

The concept of optimal weight may be modified as scientific evidence is accumulated on the determinants of body composition and weight, effective nutrition and health education approaches, and effective weight management strategies. Research is needed to permit development of more effective weight management strategies and programmes for the overweight population.

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Foods For Fitness

by Sue Hixson, MS, RDS

Certain foods, drinks, supplements and eating regimens are advertised to improve sports performance. But are they really beneficial?

Does an athlete need special nutritional supplements?

No. Scientific research shows that products such as special powders, tablets, drinks of herbs and roots, liquid chicken concentrate, and vitamin and mineral preparations in regular or "mega" doses are not necessary for improved sports performance if the athlete is eating a normal, balanced diet. Any benefit they may seem to have is probably psychological.

These types of items do not provide "energy" when taken in the recommended doses, and the excess of most of them is excreted anyway. Besides, many such special items cost a lot more than do real, tasty foods.

To build more muscle, isn't a very high protein diet needed?

There is no scientific research evidence that very-high-protein diets will help to increase muscle strength or muscle protein content. In fact, excessive protein consumption either by dietary liquid or powder supplementation may have bad side effects, such as dehydration and renal (kidney) complications.

Everyday the foods eaten should contain a balance of the three energy-producing substances — carbohydrates, proteins, and fats. Carbohydrates and fats provide only energy (measured in calories). Proteins do build new muscle and repair damaged tissues, bu if more protein is eaten than the body requires, then the extra protein will provide energy (calories) instead.

Many high protein foods are also high in fat and calories, so eating them in excess can contribute to future development of obesity or cardiovascular disease.

Eating more of any of these three — carbohydrates, fats, protein — than is needed for the amount of exercise done will cause the excess calories to be stored as body fat.

What is carbohydrate loading?

Endurance athletes need to eat extra complex carbohydrate-rich foods to store glucose in their liver and muscles in the form of glycogen. (Glycogen supplies most of the energy during an endurance event.)

To fill the muscles with the maximal amount of glycogen, starting 7 days before the event additional complex carbohydrate foods (bread, rice, noodles) should be added to the diet which should already be high in complex carbohydrates anyway. A high complex carbohydrate meal should be eaten 3½ — 4 hours before the competition, and the post-competition meal should also be high in carbohydrates to speed recovery.

This is NOT recommended for pre-teen and teenage athletes. It should only be used for marathon-like events (90 minutes or longer), not for shorter distances such as 10 km runs nor for team sports such as football. Such a regime should only be utilized three or four times a year.

Planning such a high-complex-carbohydrate diet is difficult, since such a diet requires consumption of a large quantity of food. Professional help from a Registered Dietitian or sports-trained doctor is advisable.

What should an athlete drink?

For moderate exercise, plain tap water is the recommended beverage to replace sweat losses. Cool water is best of all, because it leaves the stomach quickly and helps the body to cool down. Very sweet or salty beverages are not good, because they actually make dehydration worse and take longer to leave the stomach. Commercial drinks are acceptable, though some may need further dilution with tap water, for example dilute fruit juice (1 part juice : 4 parts water). But these are not usually necessary.

During long endurance events, such as marathons, ultramarathons, trialthalons or sporting events involving multiple heats or competitions throughout the day, carbohydrate and electrolyte beverages may enhance performance. Persons training for such sports must become accustomed to drinking the neccessary large volumes of liquid during their training so there is no discomfort during competition. Since vigorous exercise may blunt the thirst mechanism, learning to ingest liquid at regular intervals whether feeling thirsty or not should be a regular part of training.

Most important is to drink plenty of fluid before beginning practice or an event, as well as during it and afterwards. Do not wait until you feel thirsty, because by then your body is already dehydrated.

Is the same true for women athletes?

Basically, yes. However, women must be extra careful to get enough iron and calcium in their diets. The best sources of iron are lean meat and dried bean dishes like lentils (dahl). The best calcium sources are low fat or skim milk, other dairy items like cheeses and yogurt, and beancurd.

Women athletes are especially susceptible to the eating disorders anorexia nervosa (self-induced starvation) and bulimia (binge eating followed by self-induced purging). If this occurs, nutritional counselling from a proper medical source should quickly be obtained.

What is the best diet for an athlete?

The nutritional needs of the athlete are the same as those of other people. However, athletes require extra calories for increased exertion. So long as these calories come from the nutritious foods listed below, then additional needs for protein, vitamins, and minerals will automatically be met as well.

Everyday foods from these groups should be eaten:

— meat, seafood, nuts, dried beans

— beancurd, skim or low fat milk, cheeses, low fat yogurt

— fruits, especially those high in vitamin C (oranges, limes, guava, rambutan, lychee, mango, papaya), and those high in vitamin A (cantaloupe, mango, papaya)

and vegetables, especially dark green ones.

— grain and cereal products, such as rice , noodles, breads

Resist the temptation to fill up on "empty calorie" snack foods and drinks. Eat large enough portions to give the energy needed. And always drink plenty of water before, during, and after sporting practice or competition.

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Hearty's Cafe — Nutrition Promotion Through Food Service

by Yeong Boon Yee, B.Sc., RDS

The aim of the National Health Fair 1989 organised by the Ministry of Health, Singapore, was to educate the public on healthy living and to promote good eating practices. "Hearty's Cafe", the only food service outlet within the fair, was operated by CIAS (Changi International Airport Services) with the support of SDA (Singapore Dietitians' Association). All food items sold at the outlet were specially selected and adapted to meet the criteria of Dietary Guidelines set down by the Ministry.

Menu items sold ranged from main course meals, desserts, and fruits to drinks and takeaway bakeries. Special packed snack-sets for visiting school children were promoted via the schools.

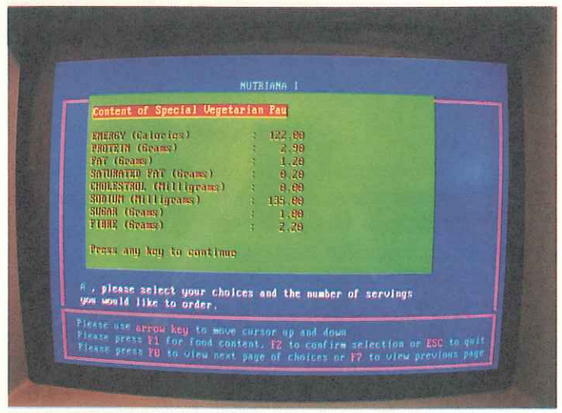
The major nutrient contents of the food were worked out by a team of dietitians after developing and testing of the recipes. A special computer programme was developed by CIAS to incorporate these and other nutrition information. Interested visitors were able to key into computer terminals provided outside the cafeteria, to find out the calorie, protein, fat, sodium and cholesterol content of the food they consumed. Comparison to their RDDA (Recommended Daily Dietary Allowance) for age and sex could then be made. Pertinent messages on healthy eating habits were also shown.

A close-by exhibition booth of the SDA, manned by dietitians, lent support to those seeking further nutrition information.

As a result of the joint effort to ensure the foods were both healthy and tasty, the cafeteria was very well received. Hence, with the right professional support, the concept of nutrition promotion through food service proved effective and viable.

Nutritional breakdown of one of the most popular dishes developed.

The computer terminals poised to provide interactive nutrition education.



An example of the nutritional information displayed on the computer screen.

Yeong Boon Yee (SDA) and Mrs Arul (MOH) about to enjoy a healthy snack.

Asia Symposium On Rice And Nutrition

Taipei, Taiwan
June 22 — 23, 1990

The Asia Symposium on Rice and Nutrition organised by the Taipei Dietitians' Association was attended by 244 dietitians and nutritionists from the USA and nine Asian countries, ie Korea, Japan, Taiwan, Philippines, Hong Kong, Thailand, Malaysia, Indonesia and Singapore. The Symposium was a great success mainly due to the united effort of members of TDA.

Tai Yee Fui and Susani Karta together with Dr Chwang Leh-Chii, President of Taipei Dietitians Association.

June 22nd: SESSION I (Keynote speech) — The importance of rice in diet and nutrition

After the opening ceremony, two papers were presented in this morning session. Dr Falck V.T. from Texas of USA gave her view of rice in an interdependent world. The purpose of her paper was to examine the outcome of the increasing need and dependence on rice as an essential food and the potential hazards of this trajectory in an interdependent world, and to propose the need for a supranational system to guide decisions made in areas of mutual dependency among nations. Nutrition contribution of rice in Asia was then discussed by Dr Hanamura M., Japan.

June 22nd: SESSION II — Current research and strategies to upgrade quality of rice

This afternoon session was very technical. Again, two papers were presented: 'The chemical basis of rice quality and palatability' by Dr Juliano B.O. of Philippines and 'Improvement of rice quality — Taiwan's experience' by Dr Song S., Taiwan.

A rice banquet was served in between the two sessions. The meal was planned by Dr Chwang Leh-Chii, President of Taipei Dietitians Association and three other dietitians from the Department of Food and Nutrition, Veterans General Hospital — Taipei. The menu consisted of rice lasagne, rice pizza, rice noodle salad, hot sour rice noodle, fermented rice with tapioca and seven other interesting rice dishes.

Manning the Singapore exhibition stand.
Susani Karta receiving token from Dr Chwang Leh-Chii, President of Taipei Dietitians Association.

A tour to Palace Museum was conducted for overseas participants after Session II.

EXHIBITION — Nutrition education materials, rice products, books and journals etc from the ten countries were exhibited. Most of them were very colourful and informative.

June 23rd: SESSION III — The use of rice in clinical nutrition

The morning session was very useful for hospital dietitians. Dr Tanphaichitr V. of Thailand reported on rice and malnutrition in Thailand. Carnitine and thiamin deficiencies caused by high consumption of milled rice and methods of cooking are still common in populations on rice-based diets. Consumption of raw fermented fish containing thiaminase I in northeastern Thais and chewing tea leaves in northern Thais

Table 1: Dietetics-Nutrition Organization and Manpower in Asia

Organization	Nutrition Society		Dietetic Association		Total No. of Dietitians	Practicing Dietitians	Total Pop. of the country	# RD/100,000 POP.
	Year founded	No. of members	Year founded	No. of members				
Hong Kong Nutrition Association	1980	73	–	–	–	47	6,000,000	0.78
Indonesia Nutrition Association	1957	1,500	–	–	–	1,500	175,000,000	0.85
Japan Dietetic Association	1954	8,000	1945	38,000	500,000	100,000	134,000,000	74.6
The Korean Dietetic Association	1969	1,000	1969	3,000	395,000	5,000	50,000,000	10.0
Nutrition Society of Malaysia	1985	250	–	–	–	35	14,500,000	0.24
Nutritionist-Dietitians' Association of the Philippines	1949	400	1955	1,500	7,000	3,000	60,000,000	5.0
Singapore Dietitians' Association	–	–	1984	36	36	30	2,650,000	1.13
Dietitian Club of Thailand	1965	1,000	1974	600	–	500	55,000,000	0.90
Taipei Dietitians' Association	1974	1,000	1989	98	350	600	20,000,000	0.3

Table 2: Dietetics-Nutrition Organization and Manpower in Asia — licensing and training

Country	RD Exam	Dietitian License	Dietitian Law	Estimated No. of Practicing Dietitian in year 2000	2000/1990	No. of Colleges Offering Dietetics Training
Hong Kong	—	—	—	(1,997?)	—	0
Indonesia	—	—	—	3,000	2×	8
Japan	1,987	1,945	1,947	13,000	1.3×	270
Korea	1,970	1,964	1,964	6,000	1.2×	97
Malaysia	—	—	—	70	2×	1
Philippines	—	1,960	1,960	3,500	1.2×	50
Singapore	—	—	—	100	3×	0
Thailand	—	—	—	600	1.2×	2
Republic of China	1,988	1,989	1,984	9,000	1.5×	10

are the additional factors which impair their thiamin status. Miss Mu, H.L. of Taiwan then presented a paper on glycaemic response of rice and rice products in NIDDM. It was pointed out that the amount of amylopectin in a rice product determines the measure of glycaemic index, ie higher amylopectin content gives higher glycaemic index. The third paper presented in this session was 'Rice soup in diarrhoea rehydration and malnutrition rehabilitation' by Dr Corpus, V.A. of Philippines. She suggested that the energy and nutrient density of rice soup should be increased without unduly increasing its viscosity when it is used in malnutrition rehabilitation and mild to moderate diarrhoea.

SESSION IV — Outlook for rice processing and preparation

Dr Jeang, C.L. of Taiwan reported the study of preparation of frozen cooked rice (fast food!). Indica-type rice which appears to be less cohesive and elastic than the Japonica-types was found to be suitable for the preparation of frozen cooked rice. This session was then ended by Dr Ohta K. of Japan's slide presentation on recent developments in rice cooking technique in quantity food production.

Frozen fried and curried rice were served for lunch that day and a visit to the Department of Food and Nutrition, Veterans General Hospital, Taipei, was arranged after the quick lunch. Veterans General Hospital, Taipei, where the symposium was located, is the largest hospital in South East Asia. It has about 2700 beds and ten dietitians are attached to the Department of Food and Nutrition. The kitchens, staff dining room and visitors' cafeteria are very huge and spacious (very impressive!). About 50% of the inpatients are on therapeutic diets catered by three therapeutic kitchens. All wards and departments have a computer system linked to the kitchen; all diet requests are by computers.

Table 3: Comparative incomes of dietitians in Asia

Country	Average Annual Income US$	RD Average US$ Income/ Month	Working Hr/Wk
Hong Kong	8,000-9,000	1,800-2,000	44
Indonesia	600	150-400	40
Japan	27,000	1,600-3,000	42
Korea	5,000	400-600	44
Malaysia	( )	600-1,200	35
Philippines	( )	300-500	40
Singapore	8,000-9,000	1,000-1,500	44
Thailand	1,500	300-400	40
ROC	7,000	800-1,200	44

SESSION V — Progress achieved by dietitians in Asia

This was the most exciting session and representatives from the nine Asian countries briefed us with the dietetic practice in their countries. Susani Karta, President of SDA from 1988 — 90, represented Singapore, outlining the current status of dietetics in Singapore and chronicling the formation and development of the SDA. Tables 1 — 3 summarise the infomation from each country.

SESSION VI (Plenary) — Where do we go from here?

The prospective role of dietitians in health team, food industry and agricultural development was discussed. Dr Chwang also summarised the progress and prospects of dietetics in Asia.

The two-day symposium was ended by the closing ceremony and the symposium dinner. From the knowledge and friendship gained, I strongly recommend all my dietitian friends to attend overseas conferences or symposiums more often.

Tai Yee Fui

Our sister associations in the region

HONG KONG: Hong Kong Nutrition Association was established in 1980 and registered with the government as a professional society. Membership includes qualified dietitians and nutritionists with degree or diploma in the area of nutrition.

At present, there are 73 full members include 54 dietitians and 19 nutritionists. Out of the 47 working dietitians, majority (42) are working in the hospitals, only one in school, two in food industry and three in other fields. However, the majority of the nutritionists are working in non-related areas.

The Association has published a wide range of leaflets for different age groups containing guidelines for healthy eating. A diabetic booklet on "guide to good eating" has also been published for local use. Members have been actively involved in nutrition education to the public. Last year a nutrition exhibition was organized by the Association to promote sound nutrition.

INDONESIA: The Indonesian Nutrition Association (PERSAGI) is a professional organization, established in January 1957. This organization unites all professionals in the field of nutrition. Initially it was called The Indonesian Dietitian Nutritionist Association. Its goal is to increase the general welfare of the population through nutrition improvement.

PERSAGI has around 1500 members spread out in the provinces of Indonesia. Ahli Gizi (Dietitians and Nutritionists) have a significant role in implementing the nutrition programmes and other health efforts assigned by the government. Members of PERSAGI are employed mostly by the Dept. of Health (Health Offices, Hospitals, Health Centre, Research and Educational Institutions), other departments, institutions (Agriculture, Social, Man Power, Army), Government Agencies (National Development Planning Board, National Family Planning Coordinating Board), International Agencies (Unicef), private health institutions, private clinics and the business and industrial sector as well.

KOREA: In Korea, the profession of dietetics was developed in the 1950s and the dietitian's license has been issued under government regulation since 1964. Since then, about 39,500 dietitians have acquired dietitian's licenses, after completing the 2 year-junior college course or 4 year-university course and passing national examinations.

There are now 5,000 practising dietitians in Korea, of whom 64% work in the institutional food services, 17% in the primary school food services, 10% in the hospitals and the remainder in social welfare facilities, food industries, research institutes, counselling centres, government, etc.

Dietitians have joined together and established the Korean Dietetic Association (KDA) since 1969. KDA has about 3,000 members now. The main tasks of KDA are: education (including the continuing education entrusted by the Ministry of Health and Social Affairs) for dietitians, publications, legislation activities related to dietitians' interests, research and development and so on.

MALAYSIA: Dietetic services which started with a small number of dietitians some 25 years ago are available both in government and private hospitals in Malaysia. The services provided by dietitians have also expanded with the availability of the dietetics course at the National University of Malaysia.

Currently the number of dietitians in service in relation to the number of patients is still low but with the greater awareness and acceptance of the dietitians as a member of the health team this situation is expected to improve in the coming years.

PHILIPPINES: The Nutritionist-Dietitians' Association of the Philippines (NDAP) was founded in 1955. Its first significant achievement was the successful campaign to have a law passed, in 1960, to regulate the practice of dietetics.

To become a licensed nutritionist-dietitian (ND) in the Philippines, one must complete a four-year degree course in nutrition and dietetics and pass the licensure examination. One of the requirements for the degree is supervised practical experience in clinical nutrition, food service management, and public health/community nutrition.

Today, there are over 7,000 licensed NDs. Most of them are employed in hospitals and community/public health programmes. A good number are employed in commercial food services, in business and industry, teaching and research. A few are in private practice as nutrition counsellors or consultants, while others have become entrepreneurs in food and nutrition related businesses.

As for the Association, it has grown to nearly 1,500 active members, with chapters all over the country. In the late 60s, it became a member of the International Dietetic Association, which sponsors the International Congress of Dietetics every 4 years. At the last Congress in Paris in 1988, it won the bid to host the ICD in Manila in 1966. As such, it is now a member of the International Planning Committee for the next Congress which will be held in Israel in 1992.

THAILAND: Thailand has a Dietitians' Club which was founded by a group of dietitians and nutritionists. Of the six hundred members of the club, ninety percent are working in the government hospitals and the other ten percent are in private hospitals. The club organizes many activities, ie, symposia, workshops, and half-day conferences on many topics on dietetics.

TAIWAN: At present, there are two major nutrition societies in Taiwan. One is the Chinese Nutrition Society founded in 1974 and is led mainly by nutrition related scholars in colleges; the other one is the Taipei Dietitians' Association (TDA) inaugurated in 1989 and composed exclusively of registered dietitians. It is mandated that candidates first pass the national examination and then join a local dietetic association. A license can then be issued by the Health Department of the local government.

TDA has 98 members. 78 (80%) are employed in the hospitals as clinical or management dietitians, others are employed in schools, government public health institutes, private diet counselling centres, food companies and other fields. Hospital clinical nutrition services and management is the major professional practice among the members.

The dietetic profession in Taiwan has a very bright future. "The National Nutrition Act" is now in the Legislative Yuan waiting to be passed. This Act will mean more employment opportunities for licensed dietitians in health care establishments, factories, institutes and schools.

Editor's Note:

The Philippines is the first Asian country to host an ICD. It will be an opportunity for dietitians, not only in the Philippines but in all Asia, to meet their Western counterparts and exchange information and ideas. The President of the Nutritionist Dietitians' Association of the Philippines has extended an invitation to all of us to come to Manila in 1996 not only to attend the Congress but also to present papers.

President's Annual Report 1989/90

It has indeed been a very busy and challenging year for members who were extensively involved in accomplishing the year's programmes. In 1989/90, the SDA concentrated on playing an active role in the first National Health Fair organized by the Ministry of Health (MOH) in October/November 1989. The SDA, with its limited experience and resources took the challenge of formulating the operations and menus for the Hearty's Cafe at the National Health Fair, and took up an exhibition booth to promote the Association and profession to the public; and lastly the SDA organized a successful one-day Nutrition Symposium.

With the cooperation of its members, the SDA's finance, membership and subscriptions for "The Singapore Dietitian" improved greatly. Our Association gained recognition at home and abroad.

More importantly, the SDA established directions for the Association and the dietetic profession for the future by adopting a continuing education programme for the full-members so as to ensure a high standard of practice. The Association also appealed to the MOH to give the same professional recognition to both dietitians and nutritionists. The SDA Central Committee proposed the possibility of a joint dietetic and nutrition professional organization.

Our Association continued to advocate unity within the profession of dietetics, seeking the promotion of equal rank, recognition and rewards for dietitians and nutritionists.

EXECUTIVE REPORT

1. The 1989/90 Central Committee

The Committee was elected to office at the 6th Annual General Meeting on April 29, 1989. Committee members elected were:

President	: Miss Susani K Karta
Vice President	: Mrs Evelyn Fong
Honorary Secretary	: Miss Chai Kwok Hoey
Honorary Treasurer	: Mrs Lynn Alexander
Committee Members	: Mrs Helen David
	Mrs Tan Wei Ling
	Mrs Tan Shok Eng
	Mrs Yeong Boon Yee
	Miss Liow Min Choo
	Mrs Sue Hixson

2 Membership

The Association's membership grew impressively this fiscal year as compared to the previous year's, especially with the affiliate members (See Table 1).

Table 1: SDA membership 1986 — 1990

Category	1986/87	1987/88	1988/89	1989/90
Full members	30	29	34	36
Affiliate members	23	23	23	59
Honorary members	—	—	—	—
Total membership	**53**	**52**	**57**	**95**

3 Professional/Education Meetings

Three professional/education meetings were organized this year:

a Effective Presentation Skills — Speaker: Kath Walsh. This was attended by 22 people at the Mount Elizabeth Hospital.

b A seminar was organized by the Dietetics Department, National University Hospital and sponsored by SDA. Dr Shirley Chen (Japan) and Professor Kraisid Tontisirin (Thailand) were the two guest speakers. About 60 people attended this seminar.

c International Nutrition Congress — "Get-Together" — Three SDA sponsored members attended the recent International Nutrition Congress in Seoul, Korea. Upon their return from Korea, they shared their experiences with 30 members at the Mount Alvernia Hospital.

4 Public Education Committee

The SDA's plans to have a regular nutrition and dietetic column in The Straits Times did not materialize as the Committee failed to collect 10 sufficient articles required by publishers. The Committee dissolved and members are encouraged to write and publish their articles individually. Several articles collected by the Committee were given to the Editor of "The Singapore Dietitian" for further publication.

5 The Singapore Dietitian

SDA's booth at the National Health Fair generated subscriptions for "The Singapore Dietitian" which increased impressively to nearly 400. Currently, the SDA prints about 3,000 copies of the journal. For the Health Fair, the SDA published an additional 10,000 copies for promoting our profession and Association.

6 Health Promotion Committee

Chaired by Evelyn Fong, this committee conducted the second "Countdown Cholesterol Workshop" at the Toa Payoh Health Promotion Centre for a consecutive period of 5 weeks in July/August 1989. The third workshop will be conducted in September 1990 at the Tampines Health Promotion Centre; new speakers are being recruited.

7 Career Week '90

For the last three years, Mrs Evelyn Fong represented the SDA by presenting talks on the dietetic profession. For the coming year, other members are requested to contribute such talks.

8 Position Paper — Exchange List

Chaired by Mrs Thio Yee Fui, a lot of work has still to be carried out to complete this overdue position paper. We need more full members to join the committee and we seek potential companies/organizations to sponsor this important nutritional project.

9 Diabetic Education For Nurses

As requested by the MOH, Mrs Thio Yee Fui gave a talk to update the nurses on current concepts in the Management of Diabetes Mellitus. We had voiced our concern about nurses giving diet counselling to patients at polyclinics. The SDA has proposed that the MOH recruit dietitians to fulfill the need of providing diet counselling at the polytechnics.

10 Continuing Education Committee

Chaired by Miss Chai Kwok Hoey, the proposal for obtaining continuing education hours/credits has been finalized by the Committee and members will be briefed on the implementation of this programme. The criteria for obtaining and maintaining the registration status has been finalized. A voluntary registration scheme has been adopted, whereby members are registered by the Association as Registered Dietitians of Singapore (R.D.S.) upon fulfillment of the continuing education requirement.

11 The 14th International Congress of Nutrition, August 20-25, 1989, Korea

Thirteen SDA members attended the Congress. The SDA was pleased to have received the support of three commercial companies (Nestle, Wyeth and Dumex) to sponsor three members to the conference through the Association. The SDA established contacts with other Asian Dietetic Associations. A tour to the local hospitals and Korean Dietetic Association proved fruitful to the participating members.

12 International Symposium On Childhood Nutrition, August 1989, Japan

Mrs Tan Wei Ling, representing SDA, participated at the above symposium. Upon her return, she shared her experience with members at the "Get Together" session.

13 The 3rd Asian Pacific Symposium Cardiac Rehabilitation, 1991, Singapore

Mrs Yeong Boon Yee replaced Misss Susani Karta in the organizing committee. The SDA is the co-sponsor of this symposium; our involvement does not incur financial obligations.

14 Total Parenteral Nutrition Seminar In Kuala Lumpur

Through the Wyeth sponsorship, 3 SDA members participated at the above seminar in Kuala Lumpur. They were Mrs Evelyn Fong, Mrs Tan Shok Eng and Mrs Anna Jacob.

15 SDA — New Business Address

The official business address registered with the Registrar of Societies is: 28 Gilstead Road, Singapore 1130.

16 International Health Regional Conference

Mrs Yeong Boon Yee will represent the SDA by presenting a paper on the Hearty Cafe Project at the above conference in Singapore, July 1990.

17 Asian Symposium On Rice And Nutrition, June 22-24, 1990, Taiwan

The Taiwan Dietitians' Association invited Susani Karta to represent the SDA by presenting a paper on the The Dietetic Practice in Singapore and to chair a session.

18 Professional Recognition for both Dietitians and Nutritionists

The SDA sent a letter of proposal to the MOH to revise the salary scale for dietitians to be in line with the nutritionists. The SDA does not see the rationale for the difference in the grading policy held by the Ministry.

19 A Joint Dietetics and Nutrition Association

In view of the formation of the Food and Nutrition Department in the MOH and the forseeable trend towards other Ministries as well as industries employing more nutritionists, it was felt that nutritionists should be given the opportunity of joining the Singapore Dietitians' Association as full-members. This would enable us to pool our resources and widen our scope. The SDA has initiated a meeting with the nutritionists to check on the feasibility of merging the profession of dietetics and nutrition as one association. The Central Committee has formulated the proposed plan.

20 National Health Fair

The SDA concentrated its resources on the above fair as follows:

a Hearty's Cafe

SDA cooperated with CIAS in operating a cafeteria serving healthy food at the fair. The SDA provided consultation to CIAS on recipe development and food preparation to coincide with the dietary guidelines recommended by the MOH. The SDA also provided the nutritional analysis data of the food served in the cafeteria.

We acquired 10% of the gross profit amounting to S$3,081.59 as a result of this project.

b SDA Exhibition

CIAS provided the initial sponsorship of S$5,000 to set up the SDA booth at the Health Fair. The SDA also received support from other commercial companies for printing 10,000 copies of the The Singapore Dietitian for distribution at the booth. A brochure to introduce the SDA and our dietetic profession to the public was printed and circulated. Members assisted by taking turns to man the booth. The gross profit generated from selling our journals was S$2,711.90.

c Symposium on Nutrition and Our Changing Lifestyle, November 4, 1990

One hundred and ninety people participated at our first symposium. It was a success as we were able to invite Dr Johanna T. Dwyer, a distinguished dietitian from the U.S. as the keynote speaker and four other foreign speakers from Thailand, Japan and Indonesia to partake in the programme. The SDA's main committee congratulated Mrs Lynn Alexander, chairperson, and her committee for their hard work and contribution to the success of the symposium. Mrs Lynn Alexander received a special plaque as a token of appreciation from the SDA for her excellent effort in organizing the symposium. The estimated gross profit from this symposium was around S$3125. The proceedings of the symposium is in print.

d Talks by SDA

Three members of the SDA volunteered as speakers for the Health Fair. They were: Mrs Yeong Boon Yee (Cholesterol: Facts and Fallacies); Mrs Magdaline Cheong (Healthy Eating) and Mrs Anna Jacob (Healthy Eating for the Elderly).

21 International Congress of Dietetics — Year 2000

The SDA plans to submit a tender to host the International Congress of Dietetics to be held in Singapore in the year 2000. The Singapore Convention Bureau is willing to assist the SDA in the planning. It will be good opportunity for the SDA to join the International Dietetic Association.

22 Acknowledgement

The Association wishes to recognize the Central Committee and the Subcommittee members who have been generous in voluntering their time and expertise to further the Association's goals of improving the dietetic profession and nutritional care to the public. The Association 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 privilege for me to serve as the third president of the Singapore Dietitians' Association. I thank the members for entrusting me with the responsibility of leading the Association. Words seem inadequate to appropriately express my appreciation to all who contributed to the success of the activities during my term as president. As I reflect on the past year, there is a feeling of pride that each and every member can share. The SDA is maturing to face its future, size and scope.

K. Susani Kartina

Susani K. Karta, M.Sc., R.D.S.
President, 1989/90
Singapore Dietitians' Association

Singapore Dietitians' Association

APPLICATION FOR MEMBERSHIP

Application forms are available from the Honorary Secretary, Singapore Dietitians' Association, Tanglin P.O. Box, Singapore 9124.

MEMBERSHIP

Full members must hold a Degree or Diploma in Dietetics. Please assist us in processing your application by submitting the following:-

1. A copy of Degree/Diploma
2. Course syllabus and description
3. Transcripts
4. Verification statement from other dietetic associations.

Affiliate members shall be:-

1. Any person holdng a recognised scientific qualification in nutrition.
2. Any interested person who, in the opinion of the Committee, occupies a position in a field allied to the profession of dietetics.
3. Any person or corporate body interested in the promotion or advancement of dietetics, or any branch thereof.

No person who is eligible for full membership shall be entitled to affiliate membership.

SUBSCRIPTION (fiscal year being June-May)

All full members shall be required to pay an annual subscription of $60.00. Full members joining part of the way into the year may pay a pro-rated subscription, this being calculated from the beginning of the month after membership is confirmed.

Affiliate members shall be required to pay $20.00 per annum. Affiliate members joining part of the way into the year (Dec-May) may pay $10.00.

BOOK REVIEW

The 8-Week Cholesterol Cure

The 8 - Week Cholesterol Cure
by Robert E. Kowalski, Harper and Row, New York, 1987.

Robert E. Kowalski graduated from Iowa State University with B.S. and M.S. degrees in science journalism and medical physiology. Heart disease was rampant in his family. His father died of a coronary attack. At 41 years, he already had 1 heart attack and 2 coronary bypass operations. This prompted him to find a cure for elevated cholesterol level.

In October 1987, the U.S. Federal government and more than 20 health organisations in a much publicized press conference, declared war on cholesterol and heart disease. A number of reports mentioned the use of oat bran and niacin as excellent ways to reduce cholesterol levels. It was recommended that the cholesterol level should not exceed 5.2 mmol/l regardless of age or sex. Kowalski tried a diet-oat-bran-niacin programme and after 8 weeks his cholesterol level had plummeted from 7.0 mmol/l to 4.4.

It is believed that high cholesterol may be due to three reasons:-

1 Diets contain too much fat and cholesterol, which the body is unable to handle properly.
2 Insufficient cholesterol is excreted through bile acids in the colon.
3 A large amount of cholesterol is produced in the liver.

The author's programme is designed to lower cholesterol levels by 20, 30 or 40%. It considers all three reasons for elevated cholesterol.

The steps to take are:

1 Moderate dietary modification
2 Take a small amount of oat bran
3 Take reasonable doses of niacin.

In chapter 4, the programme calls for the use of oat bran in muffins and other cooked foods. It includes the combination of a common breakfast cereal, over-the-counter vitamins, a reasonable and healthful diet and exercise.

Different fibres accomplish different health benefits. Oat bran is the fibre for lowering cholesterol levels and LDL (low density lipoprotein) because it contains soluble fibre.

Dr James Anderson (Department of Medicine — University of Kentucky in Lexington), a researcher, advocates 50 g (½cup) oat bran or three muffins daily. With this, total cholesterol falls as much as 24%.

Chapter 5 stresses the importance of niacin. The recommended daily allowance (RDA) of 20 mg niacin per day prevents pellagra. Niacin lowers total cholesterol, LDL cholesterol and triglycerides, and raises HDL (high density lipoprotein) levels in the blood. Dr R Attschul recommended 3 g niacin/day with excellent results. Niacin also raises PGI_2 (prostaglandin), a hormone-like chemical, thereby inhibiting the progression of the atherosclerotic processes. Total cholesterol falls between 10 — 25% on niacin alone or with other approaches. The dosage of 300 mg (100 mg × tds)/day, to be increased to 300 mg daily, is way above RDA.

However, niacin produces adverse reactions like itching (with high niacin levels), flushing, gastric upset, rash and blurred vision. Those with active peptic ulcer, liver disease, severe heart arrhythmias, diabetes and gout should not take niacin in large doses. Enduracin, a sustained-release niacin (trickles out of a wax matrix tablet), produces minimal side-effects.

Concerning the safety of taking niacin, the U.S. Coronary Drug Project showed that niacin can be taken for prolonged periods of time with only minor side-effects (as listed earlier). The study involved more than 8000 individuals from 1969 — 1975. The majority of people can tolerate 3 g niacin, others up to 1 g only, but with Enduracin, 1.5 g.

The author recommends that those with slightly elevated cholesterol should go on a diet and use oat bran only. Those with highly elevated cholesterol should go on a diet, use oat bran and follow the niacin regimen.

Other alternatives to oat bran are briefly discussed.

— use beans, legumes, rice bran or barley, which contain water soluble fibre.
— Dr Anderson advocated 3 teaspoons Metamucil (laxative) daily. It is made from psyllium seeds.
— Activated charcoal could reduce cholesterol levels by 41%.
— Synthetic fat (SPE) formulated by Proctor and Gamble Co., is a sucrose polyester (a molecule of sucrose, common table sugar and added glycerol molecules to form a giant molecule). It is non-absorbable by the body.
— Pectin — artificial sources produce some ill-effects.
— Fatty fishes eg salmon, mackerel contain EPA (eicosapentaenoic acid) which lower cholesterol level and triglycerides.
— Increased ratio of polyunsaturated to saturated fats (P/S ratio) lowers cholesterol levels.
— A little alcohol daily eg 1½ fl. oz., increases HDL.

Kowalski also recommends the following strategies to keep cholesterol level down.

1 Weight-loss programme — maintain ideal body weight to reduce risk of CHD (coronary heart disease) and hypertension.
2 Regular exercise — strenuous exercise increases HDL levels.
3 Learn to cope with stress.
4 Proper selection of foods when dining out.

The author practises self-treatment. He takes other vitamin/mineral supplements in addition to niacin, and firmly believes in the benefits of supplementation.

He concludes "Now I know I'm doing everything I possibly can to reduce the risk of heart disease. My health is my own responsibility, and it's up to me to protect my life."

Beatrice Pung, Dip. Diet, RDS

ABSTRACTS

REDUCED SERUM CHOLESTEROL WITH DIETARY CHANGE USING FAT-MODIFIED AND OAT BRAN SUPPLEMENT DIETS[1] *Wahnefried, Bowering and S. Cohen, J Am Diet Assoc 90:223-229, 1990.*

Seventy-one free-living men and women with hypercholesterolaemia were randomly assigned to one of the following four groups: low-fat, low-cholesterol diet (LFLC); low-fat, low-cholesterol diet plus 50 gm/day oat bran (LFLC + OB); 50 gm/day oat bran supplemented diet (OB); or 42.5 gm/day processed oat bran (ready-to-eat cereal containing B-glucan concentrated from oat bran) (POB). Subjects assigned to regimens OB and POB were requested to add the oat supplement without making additional changes in their diet. All groups experienced significant decreases in cholesterol, from 10 — 17%, with no significant differences among the four groups. Energy, fat, and cholesterol intakes decreased in all groups, suggesting that displacement of higher fat foods from the diet may be one of the many mechanisms whereby oat supplements lower serum cholesterol.

RISK WITH L-TRYPTOPHAN S.L. *Nightingale. The Journal of the American Medical Association. Vol. 263, January 12. 1990. p.202.*

Use of non-prescription supplements of this amino acid has been linked to the onset of eosinophiliamyalgia syndrome (EMS). Consequently, the Food and Drug Administration has issued a nationwide recall of the product. Nearly 800 cases of the syndrome, which involves severe muscle and joint pain as well as swelling of the arms and legs, rash, and fever, have been reported by state health departments. L-tryptophan has been widely available as a supplement in health food stores, supermarkets, and other retail outlets. Consumers have been taking it for sleeping difficulties, premenstrual syndrome, stress, depression, and alcohol/drug abuse. No cases of EMS have been reported from intake of L-tryptophan-containing enteral or parenteral formulas, infant formulas, or other mixed amino acids that contain L-tryptophan formulated to meet the protein needs of patients with specific conditions.

RESPONSIBLE AND IRRESPONSIBLE USE OF VERY-LOW-CALORIE DIETS IN THE TREATMENT OF OBESITY. I.A. *Wadden, T.B. Van Itallie, and G.L. Blackburn. The Journal of the American Medical Association. Vol 263, January 5, 1990, p. 83.*

Current very-low-calorie diets that provide essential nutrients and quality proteins are unquestionably safer than their liquid protein predecessors. Recent and zealous marketing, however, as well as the public's appetite for such diets, could lead to yet another round of complications and fatalities. Very-low-calorie diets providing 1,675 kj are designed to produce the largest weight loss possible while preserving lean body mass (1.5 kg/week in women and 2.0 kg/week in men). the most popular diets come in powdered form and contain 45 gm/day to 100 gm/day of quality protein from egg or milk-based sources. Alternatively, protein can be obtained from lean meat, fish, or poultry in food form. Both types of diets must be supplemented with vitamins and minerals — particularly potassium. Use of the very-low-calorie diets should be limited to persons who are a minimum of 30% (and 18 kg) overweight. Typical time on the diet is 12 to 16 weeks, followed by 3 to 6 weeks of refeeding in which conventional foods are reintroduced gradually.

THE BODY-MASS INDEX OF TWINS WHO HAVE BEEN REARED APART
Albert J. Stunkard, Jennifer R. Harris, Nancy L. Pedersen, and Gerald E. McClearn. (N Engl J Med 1990; 322:1483-7).

To assess the relative importance of genetic and environmental effects on the body-mass index, identical and fraternal twins reared apart or reared together were studied.

Sharing the same childhood environment did not contribute to the similarity of the body-mass index of twins later in life.

It was concluded that genetic influences on body-mass index are substantial, whereas the childhood environment has little or no influence. These findings corroborate and extend the results of earlier studies of twins and adoptees.

MEETINGS

16 — 19 September 1991

6th ASIAN CONGRESS OF NUTRITION

Theme:
Nutritional Challenges and Frontiers Towards Year 2000

Venue:
Putra World Trade Centre,
Kuala Lumpur, Malaysia

Contact:
The Secretary General,
6th Asian Congress of Nutrition,
c/o Department of Food Science and Nutrition, Faculty of Life Sciences,
University Kebangsaan Malaysia,
43600 UKM, Bangi,
Selangor, Malaysia.

15 — 17 March 1991

3rd ASIAN PACIFIC SYMPOSIUM ON CARDIAC REHABILITATION

Theme:
Cost-Effective Development in Coronary Artery Disease Management

Venue:
Hyatt Regency, Singapore

Secretariat:
c/o Academy of Medicine, Singapore
College of Medicine Building
16 College Road, #01-01
Singapore 0316
Tel: 223 8969

Singapore Dietitians' Association is one of the sponsors of this symposium, and our representative, Mrs Yeong Boon Yee, is on the Organising Committee.

LETTER TO THE EDITOR

Dear Madam,

I should like to clarify some points raised by Dr Jayabalan in your March 1990 issue regarding the experiments we have carried out on chicken essence.

Many traditional remedies exist to which are attached long held beliefs in their action. Recently efforts have been made to test these beliefs against scientific experimentation. One of these remedies, chicken essence or double boiled chicken, has been used for centuries by Chinese in the belief, amongst others, that it stimulates and helps people recover from physical and mental fatigue. We therefore carried out experiments, in this case on a commercial and therefore standardised variety of essence, to see if there was any measurable scientific basis for this belief. The effect on energy metabolism was used as a readily measurable indicator of such stimulation. We found an increase in metabolism that was greater than that expected from the nutritive content of the essence (1).

In agreement with Dr Jayabalan we also found that heart rate is increased, which is generally to be expected with stimulation of metabolism. The question of psychological factors is important as rightly pointed out by Dr Jayabalan. We controlled for these by providing the essence and water in a mug in which it was impossible to distinguish visually between the liquids, and also by testing on non-Chinese subjects who had never heard of the essence and its supposed effects.

As Dr Jaybabalan points out the initial effect may be influenced partly by the taste but this would be a physiological rather than psychological effect, through stimulation of oral receptors. However taste could not explain the length of stimulation which lasted several hours, whereas the essence was consumed in a few minutes at the start of the experiment. In addition a formulation based on whey protein designed to equal the energy and protein content of the essence also had a strong though different taste but did not stimulate metabolism to the same extent.

Dr Jayabalan suggests we should have used a odour with the same taste and odour, to compare with chicken essence. I would be grateful for his suggestion of such a substance, that is not chicken essense itself. However the purpose of the experiment was not to compare one stimulant against another, only to measure the level of stimulation produced by chicken essence. The purpose of using water was to provide a baseline. The active substances in the essence are in solution in water. As the volume of water itself might have had an effect on metabolism it was necessary to provide the same volume of water as a comparison. The difference between the two then gives the effect of the active substance. In fact virtually no change in metabolism is shown after consumption of water.

I trust this clarifies our experimental procedures and interpretation of the results.

Yours sincerely,

Dr Catherine Geissler
King's College, London

(1) *Geissler C, M Boroumand-Naini, C Tomassen. Large acute thermic response to chicken essence in humans.* Nutrition Reports International 39(3):547-556, 1988.

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