The Singapore Dietitian

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Dietetics Today — New Horizons

Obesity — Effective and Non-Effective Therapy

Nutritional Management of Alcoholism

Update on Cholesterol and Heart Disease

Inaugural Issue

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"Tell me what you eat,
and I will tell you what you are."

Jean Brillant-Savarin,
17th century taste physiologist

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The Singapore Dietitian

VOL. 1 No. 1 September 1985

From the President.....

It gives me great pleasure to write this message for the first publication of the journal of the Singapore Dietitians' Association.

The Singapore Dietitians' Association was formed in 1984. It currently comprises of 39 members (27 full and 12 associate) but we sincerely hope to increase our membership in the future.

Dietetics, a relatively new science, is the application of nutrition in health and disease. These days people are very health conscious so the dietitians in Singapore felt that there was a need to form a proper association to disseminate information on food and nutrition. The association hopes to bring about greater co-operation among people in the allied fields such as doctors, nurses, home economists, health educators, food scientists, food manufacturers and caterers.

One of the objectives of the Association is to upgrade the dietetic profession in Singapore. Hence an Editorial Committee was formed to bring about the publication of the journal, which will be our main medium of informing the members of any current issues of interest. The journal will be published bi-annually.

The success of the journal depends very much on the support of the members, so I hope the members will contribute any material of interest to the Editorial Committee.

On behalf of the Association, I would like to congratulate the members of the Editorial Committee for their hard work and untiring efforts without which this issue of the journal would not have been possible.

Finally, it leaves me to extend the Association's gratitude and appreciation to the many well-wishers and donors for their generosity without whose support the journal would still be a dream and not a reality.

Mrs Fatimah Lee
President
Singapore Dietitians' Association

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Dietetics Today - New Horizons

Susani K Karta, M.Sc, R.D.

It's really a very exciting time for the dietitian. Never before have so many people been so visibly interested in nutrition. Popular interest in the subject can be measured by the large numbers of best-seller diet books not to mention the large fortunes being made, satisfying the public's appetite for nutritional information and diet counselling, healthy foods and diet supplements.

Frequently, however, one hears these questions: What is a dietitian? What is his/her role? Where are dietitians employed? In answering these questions it is hoped to bring about a greater awareness in Singapore of the role of the dietitian in the health professional team.

The Profession of Dietetics

A profession is generally considered a vocation requiring some special knowledge and skill. The profession requires a high degree of worker self-discipline, judgment and adherence to a code of ethics.

The American Dietetic Association (ADA), a professional organization for dietitians, has adopted the following definition of the dietetic profession:

> "**Dietetics** is one of the helping professions which is concerned with service to the people. Its special responsibility is human welfare. The helping professions are process professions and require doing something with knowledge. In the profession of dietetics, the provider of specialized services, or the doer, is the dietitian."

The terms *nutrition* and *nutritional care* define the areas of practice in dietetics. Nutrition is the broader term identifying the dietitian's product, area of service, and expertise. The Council on Foods and Nutrition, American Medical Association, defines the terminology of nutrition as follows:

> "**Nutrition** is the science of food, the nutrients and other substances therein, their action, interaction and balance in relation to health and disease and the processes by which the organism ingests, digests, absorbs, transports, utilizes and excretes food substances. In addition, nutrition must be concerned with social, economical, cultural and psychological implications of food and eating".

Nutritional care is defined by the American Dietetic Association as:

> "The application of the science and art of human nutrition in helping people select and obtain food for the primary purpose of nourishing their bodies in health or disease throughout the life cycle. This participation may be in single or combined functions, in food service systems managements of groups, in extending knowledge of food and nutrition principles through research, in teaching these principles for application according to particular situations and in dietary counselling".

Team approach to nutritional care is a concept combining the expertise of physicians and dietitians plus other allied health professionals to improve the health of an individual.

Framework of Dietetics

A conceptual framework basic to planning for present needs in the profession of dietetics can be defined into practice, mission and philosophy of the profession:

Practice: dietetic practice is the application of principles derived from integrating knowledge of food, nutrition, biochemistry, physiology, management and behavioural and social sciences to achieve and maintain the health of people.

Mission: the purpose of the profession of dietetics is to provide quality dietetic practice which promotes and maintains health and facilitates recovery from illness.

Philosophy:

- optimal nutrition is essential for the health and well-being of every person.
- food and nutrition are not synonymous. Food is the main source of nourishment which is influenced by a complex array of internal and external factors. Alternative means must be sought when food cannot be used to attain nutritional well-being.
- the profession of dietetics recognizes that social needs are best served by having a population that is adequately nourished.
- dietetics is a profession that serves people by applying a unique combination of skills and knowledge while respecting the individual's right to make decisions concerning health.
- dietitians by their education, training and knowledge of the inter-relationships of food, nutrition and health are uniquely qualified to help individuals and society to meet these needs.
- the profession of dietetics has the responsibility for promoting quality practice and maintaining ethical practice.

Susani K Karta, registered dietitian, graduated with a BSc in dietetics from Loma Linda University, California and an MSc in Institutional Management from Kansas State University.

Formerly an administrative dietition in Massachussetts General Hospital, Boston, Ms Karta is Currently Technical Director for Nutrition in American Soybean Association, Singapore.

Specialization in Dietetics

There has always been a dichotomy in dietetics – that of the administrative and of the clinical or therapeutic areas of the profession. The early dietitian was educated as a generalist and was expected to be well-versed in both areas. With the growth of knowledge and evolution of technological, ecological and social factors, these two principal areas of competence have developed into specializations with further subspecifications. Dietitians have enlarged their sphere of practice to the community population to make a major contribution to the delivery of health care.

The four basic branches of dietetic practices identified by the American Dietetic Association are generalist, clinical, administrative and community dietetics, each requiring specified competencies.

The Generalist Dietitian

The general practitioner of dietetics is a specialist in broad application of dietetics. The generalist dietitian is needed as a staff member in hospitals or medical centres, as the "only" dietitian in small hospitals or extended care facilities, as part-time or shared dietitian serving two or more institutions, or as dietetic consultant.

The recommended education is flexible with emphasis on both clinical nutrition and management. This general background is valuable in an era of mobility. The generalist is adaptable and qualified if employed in several phases of dietetics. Additional in-depth education would be desirable when changing to a more specialized area of dietetics.

The Administrative Dietitian

There is need in the profession for the administrative dietitian, a management specialist whose function on the management team parallels that of the clinical dietitian on the health team. Technological, social and economic developments in food service are making well-qualified food service administrators more necessary than at any previous time.

The administrative dietitian has a dual orientation because of training in food preparation, nutrition and management. Therefore, the administrative dietitian can, most effectively, provide food to meet the nutritional needs of the client/patient population being served. In addition, the dietitian/manager deals extensively with human relations and human resources. The administrative dietitian may be the director of a complex food service system in a school or college, retirement residence or adult community, industrial establishment or commercial facility.

The Clinical Dietitian

Clinical dietetics is a major area of practice in the profession. In countries such as USA and UK there are numerous positions as general clinical practitioner, consultant, counsellor, researcher and/or teacher, and work in specialized clinical settings such as cardiac, metabolic, paediatric, psychiatric and renal units or programmes is available.

Clinical dietitians are expanding their role in acute dietary treatment to include community outreach for maintenance of health and prevention of disease. However, major job responsibilities for clinical dietitians are as follows:

1) assess nutrition status of individual client/patient;
2) plan nutrition care for individual client/patient;
3) implement nutrition care plan for individual client/patient;
4) evaluate effects of nutrition care intervention in individual clients'/patients' nutrition status;
5) provide nutrition education for client/patient.

With emphasis on the need for information on health care and nutrition, the clinical dietitian has a vital and challenging role in a changing world; opportunities for dietitians with initiative and imagination are unlimited.

The Community Dietitian

Traditionally, the majority of dietitians have practised in hospitals. Nevertheless, community nutrition programmes provided by community dietitians have been available for years in USA and UK. The community dietitian provides comprehensive nutrition care in a variety of settings to individual clients and nutrition education to selected groups for health promotion, health maintenance and rehabilitation.

Community dietitians have established unique roles in a variety of settings: hospital ambulatory care; public health; universities and agencies funded by voluntary and government organizations. Public health nutritionists work in the community to survey community nutrition needs, plan nutrition components of community health programmes and provide training, consultation and teaching materials for other public health workers.

Places of Employment for Dietitians in Singapore.

Currently, all the full members of the Singapore Dietitians' Association have completed the minimum internship requirements for the approved clinical learning experiences plus either a diploma or a baccalaureate degree in dietetics.

The following data provides information on the distribution of dietitians/nutritionists in Singapore as defined by places of employment in 1984/1985:

Places of employment of dietitians/nutritionists in Singapore, 1984/85

Places of Employment	No. of Dietitians/Nutritionists	Percentage
Government Hospitals (6)	13	44.8 %
Private Hospitals (4)	4	13.8 %
College or University (1)	1	3.4 %
Government Agencies (2)	2	6.9 %
Commercial/Industrial (1)	1	3.4 %
Private Health Centres (2)	2	6.9 %
Non-related Areas:		
housewives	4	13.8 %
retired	1	3.4 %
other than dietetics	1	3.4 %
TOTAL	29	100.0 %

Hospital Dietitians

Over half of the dietitians practising today are employed in hospitals The historic role of dietitians in hospitals has been to prepare and serve food to patients, and obviously this role must still be fulfilled. However, the present day dietitian must use the current knowledge of nutrition to actively participate in the treatment of patients.

The team concept has functioned in some hospitals with patients having specific chronic diseases, e.g. myocardial infections, renal disease or diabetes. The dietitian, as a team member, monitors patient weight and food intake and records the appropriate information on the medical record, thus enabling the rest of the team to use this data to plan the patient's care over a lengthy hospitalization period.

Dietitians also have the responsibility of preparing for the patient's return home when the treatment requires additional or continuing dietary therapy. The dietitian uses previously gathered information about the patient's eating habits, food preferences, appetite and socioeconomic background to aid in designing a dietary plan that will continue to be therapeutic and acceptable. The dietitian provides information about food purchasing, preparation, and food substitutes that are equivalent in nutrients, well-accepted, and allowed within the dietary prescription.

Patient follow-up and support after discharge from the hospital makes a significant difference between success and failure of dietary prescriptions.

Changing Role of the Dietitian

Individual dietitians, regardless of their abilities and desires, cannot provide the necessary nutritional support unless this is a high priority of the institution and the department of dietetics. Some administrators and departments see the provision of food to patients as the primary goal of the department of dietetics. However, just making food available to patients is not enough. It should be the goal of every department of dietetics to meet all the nutritional needs of every patient. This expanded role requires that the dietitian assess needs of patients, prepare and implement nutrition care plans, monitor and evaluate the care plans and change them as necessary. A large part of the dietitian's time needs to be spent with patients who have special nutritional problems, but the dietitian must also be concerned with the nutritional status of every patient, providing information about the maintenance of normal nutrition as well as special therapeutic diets.

"It should be the goal of every department of dietetics to meet all the nutritional needs of every patient."

Departments of dietetics which adopt patient-centred goals rather than meal-centred goals will find that it may be necessary to provide more dietitians and more supportive personnel in the clinical areas. Certain tasks may have to be reassigned and time on duty may have to be changed. With patient-centred goals, dietitians will have to be on duty when patient rounds are scheduled rather than having on-duty time dictated by the hours of meal service. With patient-centred goals, the dietitians in the out-patient service will do more than counsel patients on special diets; they will provide classes on timely nutritional subjects to groups of out-patients or to community groups on request and will also serve as consultants to various community activities.

If additional services are provided to patients, departments of dietetics will undoubtedly show an increased expenditure. However, aggressive nutritional care of in-patients may well reduce the length of hospitalization. For outpatients, nutritional care may aid in delaying or even avoiding hospitalization. Therefore, although a strong nutritional support programme will involve increased charges for departments of dietetics, the overall total cost of health care for the patient and the nation will be reduced.

Today we are hearing more and more about the accountability in health care. All professionals are being asked "What are you doing for patients?" Dietitians are prepared to do more than "feed" them. Physicians should work together to achieve a reordering of administrative goals so that each patient will be assured of receiving quality nutritional care.

Challenges Facing the Dietetic Profession

The role of the dietitian will ultimately be defined by the way the profession responds to the challenge presented by the emormous opportunities in the field of nutrition today.

The profession of dietetics should grow to encompass new areas, through more intensive education and training, so that the services of dietitians are recognized as crucial components in the care and treatment of patients with special problems. Dietitians should also look for new ways to apply their expertise for the good of the society. The profession should not try to delimit its boundaries or to erect barriers to prevent others from entering but should expand its activities into new areas where knowledge of foods and nutrition is valuable.

The dietitian does have a unique role to play in comprehensive health care. Broader roles must be developed within the framework of a multi-disciplinary health team. The challenge to dietitians in Singapore is to articulate and demonstrate these roles to the decision makers in today's health-planning process.

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Recommended Therapeutic Guidelines for Proper Weight Loss Programme

Barbara A Burlingame

Millions of individuals are involved in weight reduction programmes. With the number of undesirable weight loss programmes available and a general misconception by many about weight loss, the need for guidelines for proper weight loss programmes is apparent.

In 1983 a panel was organized under the auspices of the International Congress on Obesity (ICO) and chairmanship of Dr Aaron Altschul to prepare a document describing the minimum recommended features of professional weight control programmes. It describes recommended guidelines for an integrated approach to the treatment of obesity combining diet, exercise, and behaviour and psychological therapy.

Based on the existing evidence concerning the effects of weight loss on health status, physiologic processes and body composition parameters, the American College of Sports Medicine also has made recommendations for weight loss programmes.

It is important to be aware that there is relatively little information available in the medical literature to support many of the fairly specific recommendations made. Thus, the guidelines are largely based on what is felt to be a sensible, low-risk approach to developing a professional weight control programme recognising the state of the art.

Body weight will be represented by two components, fat and fat-free (water, electrolytes, minerals, glycogen stores, muscular tissue, bone, etc.)

Based on a consensus of both groups a desirable weight loss programme is described as one that:

1) Provides a caloric intake not lower than 1200 kcal/day for normal adults and must satisfy all nutrient needs except energy. (Note: this requirement may change for children, older individuals, athletes, etc.)

2) Includes foods acceptable to the dieter from the viewpoints of socio-cultural background, usual habits, taste, cost and ease in acquisition and preparation.

3) Provides a negative caloric balance (not to exceed 500-1000 kcal/day lower than recommended), resulting in gradual weight loss without metabolic derangements. Maximal weight loss should be 1 kg/wk.

4) Includes the use of behaviour modification techniques to identify and eliminate dieting habits that contribute to improper nutrition.

5) Includes an endurance exercise programme of at least 3 days/wk, 20-30 min in duration, at a minimum intensity of 60% of maximum heart rate (refer to ACSM Position Stand on the Recommended Quantity and Quality of Exercise for Developing and Maintaining Fitness in healthy Adults, *Med Sci Sports* 10:vii, 1978).

6) Provides that the new eating and physical activity habits can be continued for life in order to maintain the achieved lower body weight.

Because thousands of Singaporeans are obese and many have adopted unsupervised or unscientific weight loss programmes, it is evident that guidelines are needed for safe and effective weight loss programmes. These position-stands deal with desirable and undesirable weight loss programmes. Desirable weight loss programmes are defined as those that are nutritionally sound and result in maximal losses in fat weight and minimal losses of fat-free tissue. Undesirable weight loss programmes are defined as those that are not nutritionally sound, that result in large losses of fat-free tissue, that pose potential serious medical complications and that cannot be followed for long-term weight maintenance.

It is well known that obesity is associated with a number of health-related problems. These problems include: impairment of cardiac function due to an increase in the work of the heart and to left ventricular dysfunction; hypertension; diabetes; renal disease; gall bladder disease; respiratory dysfunction; joint diseases and gout; endometrial cancer; abnormal plasma lipid and lipoprotein concentrations; problems in the administration of anaesthetics during surgery and impairment of physical working capacity. As a result, weight reduction is frequently advised by physicians for medical reasons.

Barbara A Burlingame graduated from the University of California, Davis, with a BSc in Nutritional Science and Toxicology. Having previously been involved in trace element research, Ms Burlingame is now a nutrition consultant in Singapore.

The health related problems associated with undesirable weight loss programmes can be just as significant as those associated with obesity. The risks vary with the type of programme followed.

Improper Diet Programmes

Novelty diets. Novelty diets rely on the belief that certain foods, nutrients, or other substances have unique, previously undiscovered or magical properties to facilitate weight loss. They include the Beverly Hills diet, Dolly Parton diet, rice diet and the K-28 diet. Weight loss is achieved by reduction of energy intake largely through limitation of food choices. Many purport a scientific rationale which is unfounded, and documentation of effectiveness and safety is generally unavailable.

Low carbohydrate, quick weight loss diets. Claims associated with advocacy of low carbohydrate diets unrestricted in total calories include those that noncarbohydrate calories will not offset weight loss and that ketonuria accounts for remarkable amounts of weight loss in the face of high caloric intake. Variants of the diet include the Air Force diet, Dr Taller's Calories Don't Count diet, the drinking man's diet, Dr Stillman's diet and Dr Atkins' diet revolution. Most notable among reported adverse effects include nausea, fatigue, hyperuricaemia when ketosis is produced, and increased levels of low density lipoprotein cholesterol.

Mixed hypocaloric and high bulk diets. The mixed hypocaloric diet tends to be a self-imposed regimen or is prescribed with reference to various energy restricted levels of the ADA Exchange List System. Essentially no data are available on the safety or effectiveness of this approach. The concept behind the high-bulk dietary approach is that an energy-restricted diet comprising large quantities of high-bulk complex carbohydrates will result in prolonged eating time, a greater sense of satiety and a large enough volume to displace intake of more energy-dense items. Support for this concept comes from a number of studies, although thus far there are only limited data indicating nutritional adequacy and long-term effectiveness.

Very low calorie (VLC) diets. The intent of the majority of VLC regimens is to produce a rapid weight loss while sparing lean body mass and thus can be considered protein-sparing modified fasts. Variants of the VLC diets include The Last Chance diet, liquid protein diets, and the Cambridge diet. After approximately 4 to 6 wk of negative nitrogen balance, VLC diets may result in nitrogen balance or retention, although attaining nitrogen balance seems to vary on an individual basis as well as with the protein and carbohydrate content of the diet. The relevance of changes in nitrogen balance to changes in body composition has been less well documented.

Recent studies have suggested that some VLC diets are safe for the period of time under observation, usually 4 to 8 wk; however, adverse effects have been reported: sudden cardiac death during the use of diets containing protein of low biological and high biological value; cardiac arrhythmias using liquid protein hydrolysates of low biological value; skeletal muscle dysfunction using a 400 kcal high-protein diet and a variety of less well documented effects including postural hypotension, nausea, diarrhoea, alopaecia headache, fatigue, irritability, dry skin and depression. Although formula diets of 800 to 1000 kcal/day have been found to produce no evident toxicity or nutrient depletion over periods up to 12 months, long-term adverse effects of diets of lower energy levels are unknown. Maintenance of post-treatment weight loss after VLC diet treatment alone remains disappointing, although long-term maintenance may be significantly improved with the combination of a VLC diet, exercise, and behaviour modification.

Guidelines for diet therapy

In general, dietary recommendations must be developed through close interaction of patient and therapist and tailored to the individual's needs and habits, the goal being a lasting healthful pattern. In specific, the diet must meet the following standards:

A *sound scientific rationale.* At a minimum, it must be accepted that the diet modification causes fat loss primarily by decreasing energy intake. Beyond this it is possible that specific dietary manipulations facilitate adherence, minimize hunger, decrease energy availability, or facilitate a higher metabolic rate. Any such claim must be supported by a rational hypothesis or scientific evidence.

Safety and nutritional adequacy. The dietary intervention must have an acceptably low risk: benefit ratio. It is important to recognize that risk tends to rise as the energy level of the diet falls, such that sustained rates of weight loss greater than 1% of current weight or up to 1.5 kg/wk warrant both special precautions and justification. Under circumstances of imminent danger to a patient as a result of massive obesity, the potential benefits of rapid weight loss with a severely energy-restricted diet could be justified despite its greater attendant risk. In most instances, however, the risk: benefit ratio should be low due to a documented low frequency or absence of adverse effects.

The diet must satisfy all nutrient needs except energy. Since nutrient allowances may have to be modified under conditions of energy restriction or extremes of dietary composition and nutrient isolation, claims of nutritional adequacy based solely on levels comparable to standard recommended dietary allowances are unacceptable. Adequacy of a prescribed diet must be determined either from experimental data based on assessment of objective parameters of nutritional status or the absence of clinical evidence of deficiencies. Such data must have been documented in a population similar to that for which the diet is prescribed and over periods equal to or exceeding that of the treatment programme.

Practicality and long-term effectiveness. The final dietary prescription (ie, that administered at the end of the active intervention phase) must be both practical for and applicable to the patient's home/work environment and conducive to establishment of a lasting, favourable pattern of eating. Circumstances may exist in which dietary extremes under controlled conditions are used to effect significant degree of weight loss rapidly, recognizing that weight rebound will ultimately occur in the majority of cases. Justification for such programmes must be based on clear-cut evidence that health parameters are significantly improved during the transient period of reduced body weight and that factors such as the time required for treatment relative to that for weight regain, the expense and risk of therapy, and the psychological impact of weight rebound are all considered and justified. In general, however, dietary programmes must be supported by evidence of post-treatment weight control in a significant proportion of the population.

Guidelines for exercise therapy

An exercise component of a weight control programme should: *1)* promote increased energy expenditure; *2)* promote fat loss and maintenance of lean body mass; *3)* be safe for the participating individuals and *4)* promote permanent increases in activity levels within the individual's lifestyle.

Increased energy expenditure. The greatest increase in energy expenditure comes through regular use of large muscle groups with activities such as walking, climbing stairs, cycling, dancing, swimming, jogging and active sports. A graded exercise programme to increase energy expenditure must be tailored to the individual, taking into account the usual level and type of physical activity, degree of fitness and strength and physical limitations. Sedentary individuals will notice a training effect in which the activities become easier even at moderate increases in activity.

A secondary, but important potential benefit of exercise is improved cardiovascular training. The following guidelines are recommended for developing and maintaining physical fitness:

1) Frequency – 3 to 5 days per wk (2 days per wk may not be effective; more than 5 may not result in increased fitness).

2) Intensity of training – 60 to 85% of maximum heart rate, where maximum heart rate is estimated as 220 minus one's age.

3) Duration of training sessions – short duration, high intensity aerobic activity can result in the "total fitness effect"; however, because of the potential hazards and compliance problems of high intensity activity, low to moderate intensity activity of longer duration (at least 30 min) is recommended for the obese individual.

4) Type of activity – any activity that uses large muscle groups, that can be maintained continuously, and is rhythmic and aerobic in nature (eg, running-jogging, walking-hiking, swimming, skating, cycling, rowing and various endurance game activities).

5) Duration of programme – a period of 15 to 20 wk is suggested in order to reach a near maximal improvement in fitness. Maintenance of the training effect requires continuing exercise on a regular basis. A significant decrease in working capacity occurs after 2 wk of detraining with a 50% reduction in the cardiorespiratory fitness/improvement occurring in 4 to 12 wk of detraining.

Body composition. The exericse programme described above will contribute to the maintenance of lean body mass and the loss of fat.

Safety. The major concerns for safety during exercise relate to the cardiovascular and musculo-skeletal systems. The American College of Sports Medicine recommends a cardiastress test for all individuals over 35 years of age beginning an exercise programme and for those less than 35 in the presence of major risk factors for cardiovascular disease – moderate to severe hypertension, hyperlipidaemia, and/or strong positive family history of atherosclerotic heart disease. However, since standards have not been established to indicate what level of obesity would signal the need for such a test, it is recommended that appropriate cardiovascular stress-testing be obtained on an individual basis where indicated.
jumping must be carefully prescribed for the extremely obese who may already be experiencing joint damage due to excessive weight bearing. In those instances activities such as stationary and regular cycling, swimming and walking are less stressful for the musculo-skeletal system.

Promote lifestyle changes. To this end, new *patterns* of increased physical activity should be developed through a programme combining both exercise (or regular participation in sports) and "step-losing" practices. The latter emphasizes reversal of day-to-day step-saving activities (eg by using stairs instead of elevator), which can be routinely incorporated into one's lifestyle and the life-styles of family members.

Conclusion

Three components of a weight control programme must be considered together and interrelated: diet, physical activity and behaviour modification with emotional support. Weight loss can be achieved with any energy restricted diet, regardless of its composition, and can thus be promoted as an effective dietary regimen. The end result, however, does not necessarily justify the means. Weight control should be considered as only one way in which a diet can improve health; ie, the diet should be directed at overall good health, one aspect of which is weight control Used in conjunction with the diet, increased physical activity may accelerate loss of fat while permitting energy intake to remain within an acceptable range. Patient compliance in any extended intervention programme is dependent on the development of new behaviours to replace those that are maladaptive. Frequently, modifying behaviour impinges upon and requires therapy of emotional problems. Thus, these three components of the weight control programme are tightly interdigitated, interdependent and mutually supportive. Although any one may be used to achieve weight loss in certain individuals, when applied to unselected patients with widely varying dietary practices, exercise capabilities and psychological problems, an interdisciplinary programme is likely to maximize the odds of long term weight control.

These recommendations should help establish standards that ultimately will distinguish professional weight control programmes from those that lack credibility and sound practices. Protection of the consumer and the practitioner is at stake. At the same time it is expected that further research to support or refute these recommendations will ensue, thereby advancing the state of the art.

Adapted from Recommended Therapeutic Guidelines for Professional Weight Control Programmes (Amer. J. Clin. Nutr., 40; 865-872, 1984) and American College of Sports Medicine Position Stand on Proper and Improper weight Loss Programmes, 1983.

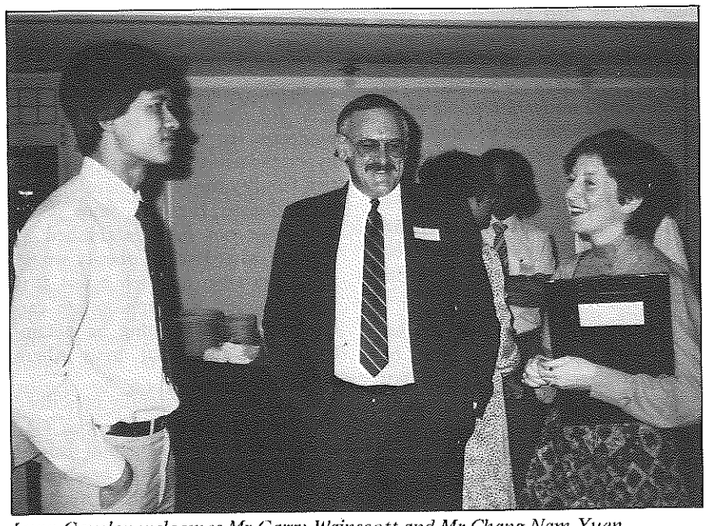
The Inauguration of the Singapore Dietitians' Association

Members of the Singapore Dietitians' Association.

The Singapore Dietitians' Association held its inauguration on Saturday, 2nd February, 1985, at The Bougainvilla Room, Hotel Equatorial. The meeting was well-attended by full and associate members, with representatives present from the allied professions, local hospitals, government agencies, voluntary organizations, commercial establishments and the press.

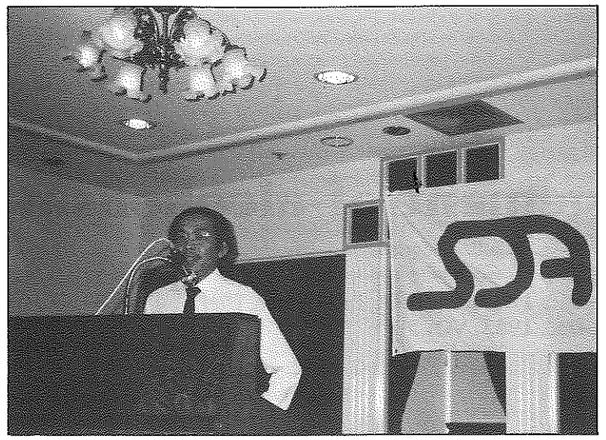
Ms Susani K Karta chaired the occasion. A welcoming address by the President, Mrs Fatimah Lee, was followed by a most interesting and informative lecture from Associate Professor Lee Hin Peng, of Dept. of Social Medicine and Public Health, National University of Singapore. The lecture, entitled "Dietary Education for Better Health", stressed the importance of public education to avoid the problems associated with unbalanced nutrition. Describing the changes in dietary patterns in Singapore over the past two decades, and the dramatic upsurge in incidence of diet-related diseases, Professor Lee concluded,

"We have moved from insufficient supply of food to overconsumption and inappropriate choice of foods. Many now have the means to eat well. The challenge for us is to educate the public on the true meaning of "eating well".



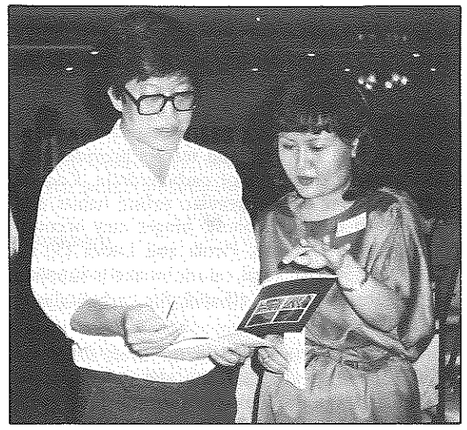
Lynn Gourley welcomes Mr Garry Wainscott and Mr Chang Nam Yuen.

Three members of the editoral committee.



Guest speaker, Assoc. Prof. Lee Hin Peng.

Mrs Fatimah Lee, President.



Mr Theng Chye Yam, President of the Singapore Professional Centre, chats with Ms Susani Karta.

Dietitians enjoying refreshments.....the menu included wholemeal bread sandwiches and fresh fruit.

Receiving the members and guests.

Nutritional management of alcoholism

Adaptation of a paper by Barbara J Visocan, R.D., in J. Amer. Diet. Assoc., Dec. 1983, VOL.

Summary

The dietitian plays a pivotal role in the nutritional management of alcoholism; the many nutritional hazards of this disease serve to emphasize this role. The consequences of alcohol abuse include caloric imbalance; alterations in carbohydrate, protein, and fat metabolism; vitamin and mineral deficiencies; and maldigestion/malabsorption. Abstinence and correction of nutritional deficits are cornerstones of alcohol rehabilitation. Active participation of and open communication among all members of the health care team are essential to ensure the patient's adherence to and successful completion of the rehabilitation plan. The members evaluate each patient as to medical and psychosocial needs, develop treatment plans, carry out individualized rehabilitation programmes and plan for follow-up care.

Alcoholism is a costly disease with serious physical, psychosocial and nutritional implications. When taken habitually and in excess, alcohol leads to illness, disability and death (1). This article discusses alcoholism from the nutritional standpoint, emphasizing the role of the dietitian in alcohol rehabilitation.

Nutritional hazards of alcoholism

Every alcoholic should be considered at nutritional risk because of the many nutrition-related effects of alcohol consumption (2). Consequences of alcohol abuse include caloric imbalance, alterations in carbohydrate, protein, and fat metabolism, vitamin and mineral deficiencies and maldigestion/malabsorption.

The primary pathway by which ethanol consumed by the "social" drinker is metabolized is through the alcohol dehydrogenase system (1,3). From each gram of ethanol that is metabolized via this pathway, 7.1 kcal are derived.

A secondary route of ethanol metabolism may be of importance in the chronic alcoholic, who would tend to attain higher sustained serum ethanol levels (1,3,4). As much as 20% to 25% of ingested alcohol may be metabolized through the hepatic microsomal ethanol oxidizing system (MEOS) (5). When ethanol is metabolized via the MEOS, it yields less than 7.1 kcal per gram.

The significant caloric contribution of excessive ethanol consumption may lead to obesity. Dessert or cocktail wines, liqueurs, cordials, beer and mixers provide additional kilocalories in the form of carbohydrate. Conversely, in chronic alcoholics, irregular eating habits and decreased appetite during alcoholic binges may account for weight loss. Furthermore, Pirola and Lieber (5) reported that when 50% of total caloric intake is supplied by isocaloric substitution of ethanol for carbohydrate, significant weight loss occurs.

Ethanol, which is metabolized in the liver, alters the normal metabolism of protein, fat, and carbohydrate. Ethanol stimulates lipoprotein synthesis and may cause a defect in lipid metabolism that results in hypertriglyceridaemia and fatty liver.

Various vitamin and mineral deficiencies can be seen in the chronic alcoholic. Heavy alcohol consumption is often associated with a decrease in the actual ingestion of nutrients (6). Another causative factor is maldigestion and/or malabsorption of nutrients which may result from the toxic or chronic effects of alcohol on the gastrointestinal tract. Malabsorption of folic acid (7) thiamin (8), vitamin B12 (9) and perhaps ascorbic acid (10) has been seen in chronic alcoholic patients. In addition, ethanol interferes with the metabolism of vitamin A, thiamin, riboflavin, and pyridoxine by impeding the conversion of these vitamins from their inactive forms (11). Decreased hepatic concentrations of vitamins are likely to be found in patients with fatty liver and/or cirrhosis because of decreased storage space (12). Ethanol induces catabolic loss of zinc, calcium and magnesium (11). Thus, vitamin and mineral deficiencies seen in alcoholics may be caused by decreased intake, abnormalities in metabolism or absorption, decreased storage, or hyperexcretion. It has also been postulated that there may be increased requirements of some nutrients to repair alcohol-induced liver injury (12).

The team approach to alcoholism

Experience has shown that alcoholism is best treated by a comprehensive team approach, with various health professionals taking an active role in the care of each patient. The team should consist of a physician, a nurse clinical specialist, an occupational therapist, a social worker, a psychiatrist or a clinical psychologist and a dietitian. The members evaluate each patient as to medical and psychosocial needs, develop treatment plans, carry out individualized rehabilitation programmes and plan for follow-up care (13).

Leevy et al. (14) suggest that abstinence and correction of nutritional deficits are the cornerstones of alcohol rehabilitation. If the patient does not abstain from alcohol, benefits derived from nutritional interventions will be small or nonexistent. The team should provide the patient and his/her family with a comprehensive programme that describes the clinical, biochemical, nutritional and morphologic abnormalities associated with alcohol abuse. Repeated seminars should emphasize the importance of abstinence to the patient's improvement.

The role of the dietitian in alcohol rehabilitation

As an integral part of the team approach, the dietitian tailors the nutrition care process to the specific nutritional requirements of each patient. The process includes assessing nutritional status, developing a nutrition care plan, implementing the plan and evaluating results (15). This systems approach can easily be adapted to either an inpatient or an outpatient setting. Each step is implemented sequentially, with concern for the individuality of each patient paramount.

Assessment

Data collection

Assessment begins with a review of a patient's medical record, admitting documents and nursing care plan for demographic information, results of physical examination and current laboratory values. Height, weight, and other appropriate anthropometric measurements should be made and any history of weight change should be recorded. The patient should be evaluated for physical signs and symptoms associated with malnutrition. Any evidence of ascites, peripheral oedema, enlarged liver, pancreatitis, oesophageal varices and jaundice may be indicative of alcohol abuse. Pertinent laboratory data should include serum electrolytes, bilirubin, blood urea nitrogen, creatinine, glucose, albumin, uric acid, liver enzymes, cholesterol, triglycerides, and haematological values.

The patient interview is one of the more important tools for the provision of additional information. The focus of the interview is on the details of daily food intake, history of dietary modification, food intolerances, use of over-the-counter drugs and use of self or medically prescribed nutritional supplements. Type, amount, proof, and average daily intake of alcoholic beverages must also be obtained. The reliability of the diet history depends on patient motivation, extent of confabulation and inebriation, and whether or not alcohol-induced psychosis (Korsakoff's psychosis) is present. For this reason, the patient's family and significant others are an invaluable source for clarifying and accumulating additional knowledge of dietary habits.

Data analysis

Once collected, information from the interview should be analyzed for average carbohydrate, fat, protein, ethanol and kilocalorie intake. The number of kilocalories derived from ethanol can be calculated by using the following formula:

0.8 x proof x ounces = kilocalories (16)

Table 1 exemplifies the use of this equation for determining the kilocalories in beer, wine and vodka.

Quantification of vitamin and mineral intake should be made if initial analysis indicates suboptimal intake. Nutritional needs are identified on the basis of this information and the results of anthropometric, laboratory and physical examination data.

Planning

A nutrition care plan is formulated on the basis of data obtained in the assessment process. The first step is to determine the need for diet modification. Table 2 summarizes suggested nutritional therapy for treatment of common complications of alcohol abuse. Abstinence is the overall approach to the management of acute gastritis (17), fatty liver and hypertriglyceridaemia.

Table 1. Sample calculations for determining kilocalories derived from ethanol in alcoholic beverages

Total amount of alcoholic beverage consumed daily	*Calculation*	*Kilocalories from ethanol*
6 x 12-oz. cans of 4% beer	0.8 x 8 proof* x 72 oz.	460.8
3 x 4-oz. glasses of 12% wine	0.8 x 24 proof x 12 oz.	230.4
½ x pint of 40% vodka	0.8 x 80 proof x 8 oz.	512.0

*Proof is determined by doubling the percent alcohol in the beverage.

Table 2. Nutritional therapy for complications of chronic alcoholism

Complication	*Nutritional therapy*
alcoholic hepatitis	high-caloric, high-protein diet
ascites	sodium restriction
oesophageal varices	diet modified in texture*
fatty liver	abstinence from ethanol
gastritis	abstinence from ethanol
hepatic encephalopathy	initial 10 to 20 gm. protein restriction, increase every 2 to 5 days
hypertriglyceridaemia	abstinence from ethanol
pancreatitis	pancreatic enzyme replacement, 50 gm. fat restriction
peripheral oedema	sodium restriction

*The efficacy of this therapy remains controversial.

Other complications require additional nutritional interventions. The presence of ascites or peripheral oedema necessitates sodium restriction (18). A diet furnishing sufficient kilocalories and protein (at least 100 gm. per day) is suggested for alcoholic hepatitis to allow for regeneration of damaged liver cells, (19). If oesophageal varices are present, modification of the diet for texture should be considered to avoid irritation, painful swallowing, or bleeding (20). This therapy is controversial, however, as the role of food in initiating haemorrhage remains unclear (18).

Pancreatic enzyme replacement is the primary treatment for steatorrhoea due to chronic pancreatitis. Concomitant with this therapy should be a reduction in dietary

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fat (21). An initial fat restriction to 50 gm per day is advisable, fat consumption can slowly be increased to 200 gm per day as long as steatorrhoea does not become clinically apparent.

Protein restriction is usually necessary for management of patients with hepatic encephalopathy (22). Although the exact aetiology of this condition is not well understood, elevated serum ammonia is considered the most likely cause. The decreased ability of the damaged liver to synthesize urea from protein leads to hyperammonaemia (23). Reducing dietary protein to 10 to 20 gm per day initially alleviates this problem (22). Protein intake is increased every two to five days until an optimal level is achieved.

Nutritional supplements should be considered for some individuals. These may be in the form of snacks, double portions, vitamins/minerals or special products. Vitamins and minerals should not be administered indiscriminately and should be given only when a specific nutrient deficiency has been identified. Specialized nutritional supplements supplying branched-chain amino acids with a limitation in aromatic amino acids have gained considerable support in recent years. This therapy is based on the hypothesis that the principal cause of hepatic encephalopathy is increased plasma aromatic amino acids and decreased branched-chain amino acids, not hyperammonaemia (24). Some researchers have shown an increased tolerance for protein and improvement in hepatic encephalopathy in patients given mixtures of branched-chain amino acids with glucose in the form of an elemental diet. It must be emphasized that the efficacy of this therapy remains controversial.

Patient education plans are also developed during this phase of the nutrition care process. Individual and family counselling should be provided when diet modification is required. Group nutrition education should always be considered for alcohol rehabilitation programmes. The alcoholic's diet is often characterized by irregular eating habits and negligible food intake during heavy alcohol consumption. Thus, group classes should include discussions of normal nutrition; concepts of food marketing and labelling; general principles of food handling, preparation and storage; food fads, facts and fallacies and the effect of alcohol on nutritional status.

The dietitian works closely with the patient to develop educational objectives that will fit into his/her particular life-style. The dietitian presents several alternatives and allows the patient to choose the ultimate course of action. Family or significant others should also be included to assure that the final plan is economically, socially and culturally feasible.

Implementation

The third step in the nutrition care process involves implementation of planned interventions. A flexible time frame is necessary because of variable periods required for recovery from the physiological and psychological effects of alcohol abuse. The alcohol withdrawal syndrome is characterized by a variety of clinical symptoms, including eating disturbances, nausea and vomiting, tremors, sleep disturbances, hallucinations, anxiety, agitation and depression (25). Providing nutrients to patients with these manifestations of withdrawal may be difficult because of the patients' inability or unwillingness to eat.

Patience and careful review is necessary when one is educating the alcoholic with brain dysfunction. Lee et al. (26) studied a group of 37 alcoholic men under the age of 35 and found that 59% had evidence of intellectual impairment. These authors suggest that such impairment may be the earliest complication of chronic alcohol abuse. Neuropsychological functioning seems to be impaired in heavy social drinkers as well as in chronic alcoholics. Deficits occur in perceptual-spatial, nonverbal abstracting, and problem-solving abilities. Wernicke-Korsakoff syndrome is an extreme example of alcohol-induced brain damage. The patient is often disoriented as to time and place, apathetic, inattentive and unable to maintain a conversation. After two or three weeks of treatment with large doses of thiamin, the neurological symptoms disappear or improve, but recovery is usually not complete. Amnesia, confabulation, and personality alterations may be seen in Korsakoff patients. Weeks or even months of repetition may be necessary for learning to occur in these patients.

Evaluation

In the ongoing process of evaluation, the degree to which educational objectives have been achieved and the effect of improved nutrition are determined. Following treatment for detoxification and a four-to six-week intensive inpatient rehabilitation programme the patient is discharged to an outpatient alcoholism clinic. As this disease is often chronic, it is imperative that the dietitian follow patients closely in the outpatient setting. The nutrition care plan should be updated on the basis of results of periodic anthropometric measurements, laboratory data, diet histories and physical examinations.

Maintaining sobriety requires major changes in lifestyle, and thus economic and social arrangements are often in a state of flux after alcohol rehabilitation. Altering eating habits is an additional change that may seem overwhelming to someone who has recently given up alcohol. The patient may have been overly zealous when plans for nutritional therapy were initially developed, but obstacles encountered when an attempt is made to implement these plans after discharge can be insurmountable. If nutritional objectives are not achieved, the initial time frame should be extended, or alternate methods of achieving the objective should be developed. Setbacks will also take place if the patient is one of the estimated 60% of rehabilitated alcoholics who have relapses and remissions (27). A supportive, nonpunitive atmosphere is necessary should this occur. The entire nutrition care process may have to be repeated, depending upon the physiological and psychological ramifications of the relapse and the length of time the patient requires to achieve sobriety once again. Input from all health care team members is essential for developing a revised treatment plan.

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A Dietitian's Guide to Quack Weight Products

The mention of quackery brings to mind the travelling medicine shows of the nineteenth century, and the drug frauds of the early twentieth century, in the days before rational drug therapy. But today, even though the drug industry is carefully regulated and the public is better informed on matters of health, nutritional quackery remains as profitable as ever.

A casual review of the weekly tabloids and health food magazines will reveal that the opportunities to lose weight, grow hair, or obtain full or partial rejuvenation seem far more prevalent than the opportunities to cure diseases. Even reasonably legitimate publications carry advertising for diets and face lifts.

The appearance of these ads in daily newspapers of otherwise good repute can be particularly damaging to the fight to control quackery. Most people have at least a qualified belief in advertising, and would hesitate to think that their daily paper would carry an ad that is overtly false.

This general belief in advertising claims extends beyond the unsophisticated to include many health professionals. Knowing that there are laws against false advertising and fraud, we tend to be fairly tolerant of extravagant claims, unless we have ingredients listed to permit a professional opinion.

Since quack ads usually don't give information about the contents of a nostrum, or may give misleading information, the dietitian, pharmacist or physician is prone to withhold comment or confess ignorance of the latest breakthrough in weight control.

Actually, many quack products follow patterns which can be detected from a careful reading of the advertising copy. In a field which has no particular reason to be either honest or consistent, many products, particularly in the weight loss area, maintain a tenuous relationship with the published literature.

Turn-of-the-Century Quackery

At the turn of the century, most obesity treatments relied on a combination of thyroid and laxatives for their effect.

While thyroid represented a serious hazard, it did remove fat without any particular need for exercise or diet. It was replaced, for the most part, with completely false claims.

One of the weight reduction methods offered in the early 1900s was the Marjorie Hamilton Combination Quadruple System of Drugless Fat Reduction, offered for the relatively steep price of US$15. It consisted of diet, exercise, laxatives, and the regular application of a bathing powder. The powder formed an oily film on the bath water, representing the fat which simply floated away as a result of the Combination Quadruple System of Drugless Fat Reduction (1).

Body Wraps

While the concept of an external product for fat elimination seems absurd, any number of them are still marketed, usually with the promise that they will remove cellulite. The formulations of these creams are varied, but of no particular importance since they have no systemic effect.

The fat or cellulite creams are simply accompaniment for a set of directions calling for wrapping the affected area with plastic wrap – in other words, body wraps. Promoted in the form of plastic or latex suits to be worn while sleeping or exercising, body wraps work, for a few minutes, by inducing profuse perspiration and fluid loss. The fluids, however, are rapidly replaced, and with them the transient weight loss (2).

The ads for these external fat removal systems seem to be less blatant than most quack ads; "cream" is spelled "creme" and the illustrations, as a group, tend to be well drawn. But behind the continental elegance, there is still the call to the kitchen cabinet and the roll of plastic wrap.

The customer pays for a European herbal creme, and winds up being treated like a leftover ham.

Phenylpropanolamine HCl

Phenylpropanolamine hydrochloride, the ingredient in most nonprescription diet aids sold by reputable suppliers, is also commonly sold by quacks. Here, the key advertising words are "the strongest appetite suppressant you can buy without a prescription!"

But while the drug is legitimate, the quack advertising for it is false or misleading.

One classic of its type carried the banner headline:

TURNS UGLY FAT INTO HARMLESS WATER and flows it right out of your system by the gallon!

The claims were literally true. Stick to the 1,000 calorie a day diet that came with the capsules, and fat will turn to water and carbon dioxide. The advertisement was a fine example of misdirection.

A similar ad declared, "University-Based Diet Released for only $2 until September 15th." The copy states:

This documented Diet-Pill Program actually turns your body's fat-buildup system UPSIDE DOWN – creates such a catabolic calorie deficit that your body turns into a 'Fat-Blowtorch' and melts down more fat than if you swam over 2 hours the first day...

Again, the claim is literally true, but seems to promise more than it can deliver.

Other sellers of phenylpropanolamine have gone past creative advertising and into outright dishonesty, such as the one who offered a weight reduction of 63 pounds in two months.

Since the Krebs cycle requires a certain amount of glucose in order to use fat as an energy source, there is a limit to the amount of fat that can be burned, even in complete starvation. The rate of more than a pound a day exceeds normal physiologic limits for fat utilization (3).

Chinese Teas

Recently, a number of Chinese teas have entered the market amidst dramatic promotional claims:

With every sip of aromatic Chinese slimming tea you will slim a little more. The original Lotos slimming tea from the banks of the Yang-Tse-Kiang combats your unhealthy surplus weight with special bio-dynamic fat-consuming agents from nature's pharmacy. Try it yourself and you'll see that you'll lose weight from the very first day without cutting back on food in any way, without doing gymnastics and without taking pills.

In fact, the Chinese tea is just tea, and has the same weight reduction value as Tetley or Lipton.

Guarana

Where tea fails, the dieter can always try guarana, "a diet that's fun . . .[and allows you to] pep up as you slim down." The ads continue: . . . this powerful yet safe herb is putting fun into weight reduction plans. Now you can have a high time even though you are dieting.

The general tone of most of the ads is that the product is "a new herb from those wonderful folks who gave you cocaine!" If this seems a bit extreme, consider this actual ad copy: ". . . gives you a new high with a cocaine-like induced lift," and "produces a sense of euphoria and even provides more energy."

Those who find guarana new and unfamiliar are the younger among us who weren't around from 1882–1926 when guarana was an official entry in the U.S. Pharmacopeia, or 1926–1947, when the drug was listed in the National Formulary.

The action of guarana was then thought to be due to an alkaloid termed "guaranine," and it can be amusing to review the old dispensatories that discuss the differences between caffeine from coffee, theeine from tea, and guaranine from guarana. Ultimately, the three alkaloids were found to be identical – all caffeine (4).

Guarana contains 4% caffeine, and the diet tablets that promise a natural high provide only about 80 mg of caffeine, or slightly less than the amount in a single cup of coffee.

If a cup of coffee provides an effective diet, and a natural cocaine-like lift, then so does guarana. If not, US$9.95 plus 95¢ postage and handling is a high price to pay for 90 tablets, particularly when a dose of up to 12 tablets a day is required.

'Growth Hormone'

Guarana is something of an antique, but quacks keep up to date with the medical literature, and sometimes have new and innovative plans for hassle-free weight loss. One writer, in the respected *New England Journal of Medicine*, suggested that human growth hormone might be effective in the treatment of morbid obesity (5).

Human growth hormone is a complex material with complex metabolic effects, but one of its properties is to promote the use of fat as a caloric source. Since the hormone is expensive and is administered by injection only, it seems a poor product for quacks to promote.

But one apparently recalled that in endocrinologic testing, a dose of arginine is given to promote growth hormone secretion. This practically initiated a new industry. One ad announced:

Growth Factor has been discovered to have the remarkable ability to speed wound healing, increase the body's ability to ward off disease, increase muscle tone, and help rid the body of excess fat. As you grow older, the normal flow of Growth Factor keeps slowing down. This may be a reason that a youthful body is slim and trim, but grows flabby with age.

Most formulas that claim to stimulate growth hormone contain arginine and ornithine, but a few others contain added amino acids such as phenylalanine and tyrosine.

It really doesn't matter. The dose of arginine needed to stimulate growth hormone release is in the range of 25-30g administered intravenously. Even a dose at that level administered orally won't show high enough blood levels to induce growth hormone release (6).

In fact, one study found that oral proteins actually reduced the levels of growth hormone release that normally occur after fasting (7). In spite of this, one quack, perhaps a believer in his own advertising, marked on his product label, "arginine and ornithine are jointly known as human growth hormone."

The key to recognizing arginine tablets is the mention of growth hormone, or the use of the popular phrase, "lose weight while you sleep." Almost every ad for one of these products offers the opportunity to lose weight while you sleep, perhaps to distinguish them from the other wonder diets that, if they do nothing else, will help keep you awake.

'Cholecystokinin'

Another modern wonder diet product relies on claims regarding cholecystokinin, which is mentioned prominently in the ads. The drawback is that the product doesn't contain cholecystokinin, but the ads represent another instance of keeping up with the literature.

The background is simple. In a well designed study, it was observed that rats stopped eating when the ingested food triggered the release of cholecystokinin. The researchers then found that injection of cholecystokinin could produce the same satiety behavior in rats, regardless

of whether any food was ingested. A third observation was that l-phenylalanine was particularly efficient in triggering release of cholecystokinin.

The observations that cholecystokinin can reduce appetite were later confirmed in monkeys, but have never been demonstrated in humans (8).

From this, it follows that a quack can take a two-page ad offering the latest in miracle diets. In this case, the mechanism is at least not disproven, but there is adequate evidence that, even if l-phenylalanine can suppress appetite in humans, it cannot suppress feeding behavior with the efficiency that it does in rats and monkeys, and this assumes that the l-phenylalanine is effective and is given in the appropriate dose.

Rats and monkeys, after all, eat to relieve their hunger. Humans eat for psychological reasons. They celebrate birthdays and football victories, or eat out of nervousness. Appetite suppression alone is not effective in humans. If it were, phenylpropanolamine would be a sufficient solution to the overweight problem.

Spirulina

A related product is spirulina, a species of blue-green algae that grows in brackish ponds and lakes. Blue-green algae have been sold for as many uses as Indian Snake Oil, but spirulina itself has been most widely promoted for its phenylalanine composition, which purportedly "acts on your brain's appetite center."

Bulking Agents

Another class of appetite supressants are the bulking agents, most notably sodium carboxymethylcellulose and glucomannan. Both produce abdominal distention, which presumably reduces the sensation of hunger.

Many of us were taught, quite seriously, that the hunger mechanism is controlled by abdominal distention and blood sugar. When the stomach was full and the blood sugar was elevated, there was a sensation of fullness. If we didn't learn this from our instructors, we heard it from our mothers, who refused us cookies before meals because "it will spoil your appetite."

The argument had a certain air of logic, but fails the test. It has been demonstrated graphically that neither of these bulk laxatives remains in the stomach long enough to have any effect on appetite (9).

The story of glucomannan is a good illustration of the uphill battle that government regulators have to fight in order to get unproven or worthless products off the market.

Glucomannan is a chemically-processed form of the konjac root, which has been used as food in the Orient for many years. It has not, however, been reported in either the Engish or Japanese literature as a weight loss product.

DHEA

There are a few other products offered for weight loss on the non-prescription market today. Dehydroepiandrosterone (DHEA) has appeared in some regions. Although classed as an androgen, this hormone is almost free of androgenic activity, and, in rat studies, has actually shown some promise of causing weight reduction (8).

But DHEA has not been tested in humans, and is subject to intensive first pass metabolism so that the doses required are immense – far greater than any of the commercial products provide. Also, while the ads claim freedom from side effects, anecdotal reports have claimed that DHEA – even in doses which are trivial compared to the ones that would be needed for weight loss – has been a cause of increased aggressiveness.

To speak generously of DHEA, it is unproven as opposed to disproven.

Patient Counselling

Counselling a patient who is even considering using a quack product, whether for weight loss or any other purpose, may be a problem.

People resort to quacks for a variety of reasons. Those with conditions which are beyond the skill of conventional medicine turn to quacks as a last, desperate hope. Others who buy diet pills or "instant face lifts" may do so in the hope of avoiding reality for a small fee.

Many patients, however, turn to quacks as an affirmation of their disbelief in conventional therapy. Each fee paid is a demonstration of their conviction that only megavitamin therapy, homeopathy and naturopathy can show the way to good health. When these patients ask questions, it is with the purpose of convincing themselves that they are right, and that the dietitian, pharmacist or physician is ignorant.

The risk these patients face is that they will progress from the economic cheats to the more serious quacks who will offer to treat arthritis and cancer. These patients must be treated with dignity, and their questions must be answered in a fully professional manner.

Taking a superior attitude will only arouse antagonism, and, if you can't save the patient from his or her own foolishness, you may at least spare yourself from a lengthy and vitriolic reply.

Quackery is far older than scientific medicine, and will probably last as long as people dream and fantasize.

Clearly, past efforts to control quackery through legislation and regulation haven't been enough.

Perhaps understanding may make a difference.

Adapted from an article by Samuel D Uretsky in American Pharmacy Vol. NS25, No. 2, February 1985.

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Cholesterol and Heart Disease: No Easy Answers

adapted from a review by Donald J McNamara, Ph.D.

- **Has coronary heart disease (CHD) become more widespread?**
- **What multiple risk factors contribute to the development of CHD?**
- **Does dietary cholesterol significantly influence blood cholesterol levels?**
- **Are widespread dietary recommendations warranted on the basis of existing scientific data?**

Background

For more than 30 years scientists have been seeking insights into the complex process of coronary heart disease (CHD). A major cause of mortality in the developed world, CHD results largely from a slow buildup of plaque on artery walls, clogging the flow of blood to the heart (heart attack) or brain (stroke). This early buildup of fatty deposits is called atherosclerosis (hardening of the arteries). It is not a "modern" disease – the remains of plaque have been identified in the arteries of Egyptian mummies (1).

Some of the milestones along the path of CHD research have been:

- Epidemiologic evidence (statistical studies of populations) from seven countries was collected and analyzed by Ancel Keys during the 1950's. Keys found a correlation between the rate of heart disease in each country and two striking features – the amount of animal fat in the diet and the blood cholesterol levels of the population (2).
- Surgeons working with heart attack victims observed that their patients' arteries were clogged with fatty deposits composed primarily of cholesterol.
- A long-term study begun in 1947 in Framingham, Massachusetts identified 37 factors that seemed to predict the development of CHD. The most common risk factors were hypercholesterolaemia (elevated blood cholesterol), hypertension and smoking (3).
- In January 1984, the suspected correlation between blood cholesterol and risk of CHD was confirmed in a 10-year study conducted by the National Heart, Lung and Blood Institute. This trial, the Lipid Research Clinic Coronary Primary Prevention Trial or LRC-CPPT, showed that hypercholesterolaemic people who took a blood cholesterol-lowering drug (cholestyramine) and modified their diets had fewer heart attacks than people who only modified their diets (4).

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The LRC-CPPT has sparked renewed interest in the cholesterol issue. Its chief value has been to confirm the link between high levels of blood cholesterol (hypercholesterolamia) and CHD. Furthermore, it has shown that high blood cholesterol can be successfully treated with the drug cholestyramine.

LRC investigators have clearly stated that CPPT was *not* a dietary study. Whether or to what degree dietary cholesterol influences blood cholesterol cannot be extrapolated from this study.

Some questions and answers about cholesterol

1. What is cholesterol?

Cholesterol is an essential fat-like substance found in every living cell in the body, especially in the brain, liver, kidneys, adrenal glands and the fatty sheaths surrounding nerve fibres. It has many functions including the manufacturing of digestive bile acids and steroid hormones (5). The liver produces about 80% of the body's cholesterol. About 20% comes from dietary sources.

Cholesterol is one of the major types of fats found in the blood. Other important blood fats (plasma lipids) are phospholipids and triglycerides (6).

2. How does cholesterol behave in the body?

Cholesterol travels through the body's circulation accompanied by proteins. These cholesterol/protein packages are called lipoproteins. There are several major families of lipoproteins (not all are cholesterol-rich) (6).

Chylomicrons – These are produced in the lining of the intestine and mainly contain triglycerides. They are removed or cleared from the blood by the liver.

VLDL or Very Low Density Lipoproteins – These are large lipid/protein molecules, rich in triglycerides. About half of the VLDLs are cleared from the blood by the liver and about half are converted into low density lipoproteins.

LDL or Low Density Lipoproteins – These lipid/protein molecules carry both fat and cholesterol to body specialized receptors on the surfaces of cer-

tain types of cells.

HDL or High Density Lipoproteins – These smaller lipid/protein compounds are believed to remove cholesterol from body tissues and transport it back to the liver where it can be cleared from the body.

3. Is the cholesterol found in foods (dietary cholesterol) the same as the cholesterol found in the blood?

Technically they are the same chemical substance, but the relationship between the two in the body is not clearly understood. In most individuals, dietary cholesterol is properly metabolized and utilized. A feedback mechanism is believed to regulate the manufacture of cholesterol so that when dietary supply is low, the liver produces more and when dietary intakes are high, the liver decreases production (7, 8).

A direct correlation between the amount of cholesterol eaten and the level of cholesterol in the blood has not been found in studies of normal, healthy people.

4. What factors determine the level of cholesterol in the blood?

An important factor determining the level of cholesterol in blood is genetics. Elevated serum cholesterol (hypercholesterolaemia) tends to run in families. Other determining factors affecting blood cholesterol levels may include (6, 9, 10):

- diet
- age
- sex
- weight
- exercise
- stress
- alcohol
- uric acid blood levels
- season of the year

5. How is blood cholesterol related to CHD?

Because the exact cause of CHD (or of its predominant underlying condition atherosclerosis) is not known, scientists have identified factors that seem to "set the stage" for the development of heart disease. These are called *risk factors.* Elevated blood fats (lipids), one of which is cholesterol, have for many years been statistically correlated with a higher incidence of CHD and have been identified as one of these risk factors. In other words, a high blood cholesterol level increases the risk for coronary heart disease.

6. What other risk factors have been identified for the development of CHD?

In addition to high blood cholesterol, other factors associated with the incidence of CHD include high blood pressure, cigarette smoking, sex (males), race (Caucasian), obesity, a sedentary lifestyle, diabetes, and "Type A" behavior (e.g., impatience, hostility, achievement) (2, 3, 6, 10, 11).

None of the risk factors alone can "predict" CHD and it is unlikely that any one of them by itself is responsible for the development of CHD. Instead, it is believed that the more risk factors present, the higher a person's risk for CHD. It is important to note that today, only half of all heart attacks can be attributed to any of the known risk factors. In other words, 50 percent of all heart attacks are due to presently unknown risk factors (12).

7. At what level is blood cholesterol "elevated"?

There is no scientific consensus on a precise cutoff point above which blood cholesterol becomes "elevated." Some general estimates of blood cholesterol levels considered to be high by various authoritative groups are listed below:

American Heart Assn (6):
240-280 mg/dl = moderately elevated levels; slightly increased risk

280 + mg/dl = hypercholesterolaemia; increased risk

Lipid Research Clinics (4):
265 mg/dl = hypercholesterolaemia; increased risk

Pooling Project (6):
240 mg/dl = mild hypercholesterolaemia; slightly increased risk

American Medical Assn (13):
90th percentile for age and sex
Range in men 20-79 = 215-249 mg/dl
Range in women 20-79 = 207-280 mg/dl

If your blood cholesterol is elevated, you need a second test which will determine how much low density lipoprotein (LDL) cholesterol and high density lipoprotein (HDL) cholesterol make up the total cholesterol level. (See question 8)

8. Is the "type" of cholesterol in blood also an important factor in CHD?

Both low density lipoprotein (LDL) and high density lipoprotein (HDL) transport cholesterol in the blood. However, people with higher levels of LDL cholesterol in the blood are thought to be at greater risk for CHD since it is the LDL cholesterol that causes accumulation of plaque on artery walls and atherosclerosis. HDL cholesterol, on the other hand, is thought to be protective, because it transports cholesterol away from the artery walls back to the liver which clears cholesterol from the body (6).

Today, evidence strongly indicates that the ratio of LDL and HDL cholesterol making up the total blood cholesterol level is what actually determines the risk for CHD. That's why it's important for individuals with high blood cholesterol to have a second test which fractionates the cholesterol into its LDL/HDL components. A total blood cholesterol/HDL ratio of 5.0 is associated with an average risk for CHD. An optimal ratio, around 3.5, corresponds to half the standard risk (14).

9. What determines the ratio of HDL to LDL cholesterol?

Higher levels of HDL cholesterol (the so-called "good" cholesterol) have been observed in people who exercise regularly, in premenopausal women, in nonsmokers and in moderate drinkers (one to two alcoholic drinks per day). Conversely, higher levels of LDL cholesterol ("bad" cholesterol) have been correlated with sedentary lifestyles, obesity, diets high in saturated fats and soft drinking water. (10, 13, 15, 16).

10. When does elevated blood cholesterol become a risk factor for CHD?

An elevated blood cholesterol that includes a high ratio of LDL (see question 8), in and of itself, is a risk factor for CHD. The risk increases significantly when other risk factors are also present. For example, if you have a family history of heart disease and you are male in the high-risk age group and you are significantly overweight, your risk is greatly increased.

11. What are the important dietary factors influencing blood cholesterol?

Current theories have identified several dietary factors that may interact to influence the total amount of cholesterol in the blood or more importantly, the ratio of HDL to LDL (10, 15, 17).

a. Saturated fat (animal fat, hydrogenated oils, coconut and palm oil) and/or cholesterol accompanied by saturated fat in the diet is believed to increase LDL blood cholesterol levels in some individuals.

b. Increasing the amount of polyunsaturated fats (Corn and soybean oil, etc) in the diet while decreasing the amount of saturated fats is believed to lower LDL cholesterol, thus favourably shifting the HDL to LDL ratio.

c. Foods high in fibre, especially pectin and gums, may contribute to a more favourable HDL to LDL ratia.

d. Certain vitamins and minerals (vitamin E, calcium/magnesium ratio) may play a role in altering HDL to LDL ratio in some individuals.

12. Is dietary cholesterol a risk factor for CHD?

An association has been found between elevated blood cholesterol and CHD. However, dietary cholesterol does *not* directly influence blood cholesterol in a consistent fashion. Atherosclerosis has been produced experimentally in laboratory animals by manipulating their diet, but there are several problems in trying to translate these findings to humans.

However, it is believed that hypercholesterolaemic patients may benefit from modifying the fat and cholesterol content of their diet as part of a total treatment programme to lower all of their risk factors for CHD (6, 10, 13, 15).

13. Does dietary cholesterol raise blood cholesterol levels?

Since egg yolks are a rich source of cholesterol, egg consumption has been used as an indicator of cholesterol in the diet.

Data from dietary questionnaires used in the Framingham Study led researchers to the conclusion that "within the range of egg intake of this population merely avoiding eggs in the diet will have little or no effect on blood cholesterol level (18).

A recent review article examining blood cholesterol's response to dietary cholesterol concluded that the amount of cholesterol in the diet itself can have only limited effects on blood cholesterol levels. It appears that saturated fat has a more consequential effect and that a reduction in saturated fat in the diet has a much greater impact in reducing blood cholesterol levels (19).

14. Why do individuals respond so differently to dietary cholesterol?

Scientists have not yet determined why different people respond differently to dietary cholesterol. One group of researchers identified three different types of responses: (1) Excess dietary cholesterol is metabolized and excreted in the faeces; (2) When high levels of cholesterol are consumed in the diet, the liver produces less in the body; (3) Excess cholesterol results in increased blood cholesterol levels (15).

These differing responses help explain why some individuals do not show a response while others show increased levels of cholesterol in the blood. Current research is exploring ways to identify responders and nonresponders.

Glossary

Arteriosclerosis – a group of diseases characterized by thickening and loss of elasticity of artery walls. It occurs in three forms, all involving the accumulation of deposits that interfere with normal blood flow.

Atherosclerosis – a form of arteriosclerosis in which deposits composed of fatty materials, cholesterol and dead cells form in the large and medium-sized arteries.

Cholesterol – an essential fat-like substance found in all living cells, especially in the brain, liver, kidneys, adrenals and myelin sheaths surrounding nerves. Most of the body's cholesterol is produced in the liver.

Cholestyramine – a drug which lowers blood cholesterol by binding bile acids, thereby causing the body to use up cholesterol to make more bile acids.

Chylomicron – a droplet containing tryglyceride fat, cholesterol, phospholipids and protein, found in the intestines and blood during and after meals.

Gum – a type of fibre found in oatmeal, sesame seeds, beans and bulk laxatives; is believed to reduce the level of fatty substances and cholesterol in the blood.

High density lipoprotein (HDL) – a plasma lipoprotein containing high levels of protein, small amounts of triglycerides, moderate levels of phospholipids and relatively little cholesterol.

Lipids – fats and fatlike substances in the body that are not soluble in water. Lipids are easily stored in the body and serve as a source of fuel, an important constituent of cell structure and other biological functions.

Lipoprotein – a complex of lipids and proteins; the form in which lipids are transported in the blood.

Low density lipoprotein (LDL) – a plasma lipoprotein containing a low percentage of triglycerides, high levels of cholesterol and moderate levels of phospholipids and protein.

Monounsaturated fats – fats that have little effect on blood cholesterol, e.g. peanut oil and olive oil.

Pectin – a type of fibre found in bananas, oranges, apples, potatoes, cabbage, carrots and grapes; believed to reduce the level of fatty substances and cholesterol in the blood.

Phospholipid – a compound lipid containing phosphorus; the major type of lipid in cell membranes.

Polyunsaturated fats – liquid fats such as corn, safflower, soybean, sunflower, cottonseed, walnut and sesame oils. Polyunsaturated fats are believed to lower blood cholesterol levels.

Saturated fats – fats that are hard at room temperature, including butter, shortening, meat fats (suet, lard, lamb fat) chicken fat, coconut oil, palm oil and some margarines. Saturated fats raise the cholesterol level in the blood.

Triglycerides – a neutral fat; the usual storage form of lipids in animals.

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In Brief ...

Drinking Soft Drinks Linked to Dental Caries

Frequent consumpton of sugar-sweetened soft drinks has been shown to be associated with increased risk of dental caries by a 1971-1974 survey of more than 20,000 people conducted at the University of Michigan. Drs A I Ismail, B A Burt and S A Eklund reported at a 1984 meeting of the International Association for Dental Research in Dallas, Texas, that the association between soft drink consumption and dental caries still was evident after accounting for differences in consumption of other sugary foods. These findings challenge the theory that only foods retained in the mouth for long periods can be cariogenic.

Coffee and Regularity

Coffee may keep you going – in more ways than one – according to research findings presented at the October '84 national meeting of the American Dietetic Association. Researchers from the University of Kansas College of Health Sciences and Hospital report that both regular and decaffeinated coffee appear to have a laxative-like effect.

Hearing some patients say that they can't get their bowels moving without first having a cup of coffee, registered dietitian Sharon K Friesen Penner, MS, and her colleagues set out to see scientifically the effects coffee has on bowel function. A group of nine men were given approximately 2½ cups of regular black coffee, decaffeinated black coffee, or hot water with lemon juice for three seven-day periods. The researchers compared how fast and how often bowel movements were produced after drinking these beverages. To be certain that other dietary factors, such as fibre, did not influence the results, the researchers provided similar meals for all of the men. What they found was that the men's bowel movements occurred more often and more quickly after drinking either regular or decaffeinated coffee than after drinking only hot water with lemon juice.

Regular coffee had a greater effect than decaffeinated. The researchers are not sure why coffee produced this effect, but Penner suspects the beverages stimulate intestinal secretions or they contain laxative-like chemicals.

Although this may be advantageous for people who have constipation problems, those with a tendency toward diarrhoea may do well to go easy on both beverages. Moreover, coffee can pose problems for people who have ulcers or heartbeat irregularities.

Book Review

Introduction to the Profession of Dietetics. Sally J Lanz, M.S., R.D. Philadelphia: Lea & Febiger. 1983. Paper Cover, 169 pp., 3 illustrations, 7 tables. $11.00 in U.S.; Canada, $13.75.

Past, present and future directions for the dietetics profession are explored in this overview that is a valuable career guide for prospective students or students in introductory courses, and for graduates of nutrition, dietetic and related programmes. For practitioners and administrators, it is a practical reference that summarizes key dietetic information.

Chapters 1 and 2 define basic terminology of the profession and also provide a concise history of dietetics. Nutrition educators and authors will find these chapters useful in defining the nutrition and dietetics field.

Specialities in dietetics are examined in Chapters 3 and 4, followed by a chapter on dietetic education, an excellent basic guide for student counselling and academic planning. Credentialing in dietetics, Chapter 7, gives much useful information on registration, certification and licensure, plus continuing education. Other chapters cover the dietetic team, the health care team, professional dietetic organizations, a survey of dietetic manpower, a discussion of salary and employment practices as aspects of career satisfaction, and present and future challenges. A glossary further defines terminology, and a subject matter index adds to convenience in use.

This current and useful compilation of career information is particularly valuable because it brings together material not readily available elsewhere from one source.

Abstracts

CHALLENGES FOR DIETITIANS IN A HIGH TECH/HIGH TOUCH SOCIETY. *By A L Owen. J Am Diet Assoc 84:285, 1984.* In this rapidly changing environment, with major transformations taking place, dietitians need to "stay ahead" to meet these challenges. Today's sophisticated computer technology has only hastened the plunge into the information society. Technology and human potential are the two greatest challenges facing society today. If dietitians are to gain full support and legitimacy in this era of convulsive change, they will need a rich mix of creativity, experimentation and change.

CRITICAL BEHAVIORS IN THE DIETARY MANAGEMENT OF HYPERTENSION. *By J L Tillotson, M C Winston, and Y Hall. J Am Diet Assoc 84:290, 1984.* The report of an interdisciplinary group convened by the National High Blood Pressure Education Programme identifies 10 steps the patient must take to change dietary behaviour. The report emphasizes a gradual, progressive approach and ongoing patient contact with the health care team.

THERAPEUTIC EFFECTS OF DRUG-NUTRIENT INTERACTIONS IN THE ELDERLY. *By D A Roe. J Am Diet Assoc 85:174, 1985.* This article points out that drugs are stopped prematurely in the elderly either because the drugs are ineffective or because they are toxic. Either of those unwanted outcomes may be the result of drug-nutrient interactions. Emphasis is placed on the need for dietitians to plan diet changes and mealtimes so as to avoid interference with drug efficacy and safety.

INCREASING CALCIUM INTAKE LOWERS BLOOD PRESSURE: THE LITERATURE REVIEWED. *By H J Henry, D A McCarron, C D Morris, and M Parrott-Garcia. J Am Diet Assoc 85:182, 1985.* Epidemiological surveys, animal experiments, and clinical trials support an inverse relationship between calcium and blood pressure. Disturbances in calcium metabolism have been identified in hypertensive human beings and animals. Supplemental calcium has been shown to reduce elevated blood pressure significantly in both human beings and experimental animals.

Sources of Nutritional Reference in Singapore

As a service to our members, and other interested persons, we have compiled a list of nutrition-related journals and periodicals currently available in the Medical Library of the National University of Singapore. Members of this library might find the following titles useful:

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Advances in Food Research	1948
American Journal of Clinical Nutrition	1952
Annales Nestlé	1972
Annual Review of Nutrition	1981
British Journal of Nutrition	1903
Drug Nutrient Interactions	1982
FDA Consumer	1973
Food and Chemical Toxicology	1982
Food and Nutrition	1975
Food Technology	1972
Human Nutrition : Applied Nutrition	1985
Human Nutrition : Clinical Nutrition	1985
Journal of Agriculture and Food Chemistry	1972-75, 1981
Journal of the American Dietetic Association	1985
Journal of Food Protection	1983
Journal of Food Science	1940
Journal of Food Technology	1981
Journal of Nutrition	1928
Journal of Nutrition (Supplement)	1954
Metabolism – Clinical and Experimental	1952
Nutrition Reviews	1942
Nutrition Society Proceedings	1944
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The following policies will be implemented in an attempt to attain a reasonable standard and format for the *Journal* and at the same time encourage submission of manuscripts from professionals in fields allied to nutrition and dietetics.

When there is sufficient and suitable material available, the *Journal* will include articles on research, major feature articles, short clinical papers, reviews and correspondence.

Research articles must conform to the standard practice of scientific research methods.

Major feature articles do not need to be research based. However, they must make a substantially new contribution based on validated information.

Title

The title should summarise the main idea of the paper in a concise statement. Its principle function is to inform readers about the nature of the paper, thus it should be self-explanatory when standing alone.

Abstract

An abstract is a brief summary of the content and purpose of the article. It should allow the reader to survey the contents of an article quickly.

An abstract of a research paper should contain statements of the problem, method, results and conclusion. The subject population should also be specified.

The abstract should be typed immediately below the title and should not be labelled.

Method

This should clearly describe how the study was conducted. It should be detailed enough to allow an investigator to replicate the study. This will also allow the reader to assess the appropriateness of the methods and the probable reliability of the results.

Results

The results should summarise the collected date and any statistical treatment of them. The use of graphs or tables will clarify information.

Discussion and conclusion

This should present an evaluation of the implications of the results. It should examine, interpret and qualify the results and draw inferences from them. Similarities and differences between these results and the work of others should be cited.

Bibliography

All references cited in the text and other relevant works should appear in a bibliography, on a separate page, appended to the article. The following convention should be followed:

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In the case of a chapter of a book: author's surname and initials; title of chapter; name of editor; book title (in italics); publisher's name; place of publication; year of publication. See example 2.

In the case of a paper from a journal; author's surname and initials; title of paper; name of journal; volume, number, page numbers, year of publication. See example 3.

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Example 1

Smith, A.B., 'Cardiac Surgery', Churchill Publishers Inc: New York, 1959.

Example 2

Brown, C.D., "Electrophysical Agents in Physiotherapy Reviewed", Gray E. (ed) 'Electrotherapy', Eastern Press: London, 1960.

Example 3

Green, F.G., White, H.J., Black, K.L., "Assessment of the value of Positive Pressure Breathing Apparatus in Inducing Cough", The Australian Journal of Physiotherapy, 24:4, 1961.

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Each table and illustration must appear on a separate page. They should be numbered and labelled.

Reproduction tends to soften contrast and detail in photographs. It is therefore necessary to ensure that all photographs are in black and white and have sharp contrasts.

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