

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

A DIETARY STUDY OF HEALTH CLUB MEMBERS

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by

Christine Dearden Miller

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The Thesis of Christine Dearden Miller is approved:

Marjory L. Joseph, Ph.D.

Lillie M. Parkin, Dr.P.H.

Ann R. Stasch, Ph.D.,
Committee Chairperson

California State University, Northridge

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ABSTRACT

A DIETARY STUDY
OF HEALTH CLUB MEMBERS

by

Christine D. Miller

Master of Science in Home Economics

This study examined the dietary characteristics of health club members and ascertained if the nutritive quality of a member's diet was related to the length of time he/she had been a member.

Seventy-three questionnaires were collected from members of the Coast and Valley Health Spa in Ventura, Oxnard and Simi Valley. Each respondent received a diet score based on the frequency intake of specific foods and beverages.

Statistical analysis showed no significant relationship between length of membership and diet score at the .05 level. A trend of beneficial dietary changes as membership progresses might exist, as the data were significant at the .1 level.

Chi square calculations showed significant relationships between a variety of dietary factors. Areas of study included descriptive data on the respondents, use of supplements, daily eating patterns, vegetarian life styles, patronage of fast-food operations and health food stores, and dietary changes occurring during membership.

CHAPTER I

INTRODUCTION

The purpose of a health club is to provide members with the guidance and resources to achieve body fitness. Clubs differ in the extent of their services and facilities. Some offer a limited array of weight machines while others entice the consumer with amenities such as a pool, jacuzzi, sauna, eucalyptus room, and counseling in nutrition. Members also differ in the extent to which they use the services and incorporate the spa into their daily life style. Some come to enjoy the cardiovascular exercise, others are toning or building muscles, and some members simply retreat to the soothing waters of the jacuzzi at the end of a hard day.

A health club or spa is primarily a promoter of health and physical fitness. Members are not passive souls. To attain his/her specific goal of body fitness, a person must have a certain spirit of cooperation and dedication while pursuing an individually-tailored program of exercise.

To augment the benefits of the program, it is also desirable that a member assume responsibility for establishing sound dietary habits outside of the club setting.

True dedication to a healthful way of life would be reflected in more ways than a bi-weekly workout and would ultimately shape the individual's food behavior.

The difficulty of adhering to a healthy diet in the face of mass media, food fads, and self-appointed nutrition experts is well summarized by Martin:

Goals for good nutrition are less tangible, and the rewards are more remote. Therefore, motives are understandably weaker . . . Nutrition in the abstract has little appeal . . . Individuals are interested in nutrition as it can be translated into specific benefits, and they want those benefits at once. The success of nutrition education, therefore, hinges on whether short-term personal aims are identified and used effectively (37:27).

Health clubs can attribute their popularity and success to capitalizing on these human tendencies. Each member works toward his/her own goal, which is concretely defined in terms of the body's ideal weight, measurements, and cardiovascular endurance. Results can be seen in a matter of weeks or months.

Justification

Little research has been conducted on health club organizations and their clientele. Yet these facilities are becoming increasingly popular as Americans strive to incorporate some form of exercise into their daily routine. High incidence of heart disease, hypertension and obesity are motivating many to take better care of their bodies.

The past decade has seen a national preoccupation with nutrition as well as physical fitness. Growing concern over nutrition has prompted many people to consider seriously their eating habits and the effects of their diet upon their health. { This is particularly evident in the popularity of the vegetarian diet, recently redefined by the "new vegetarians" (16:376). Instead of a religious or ethnic orientation, these young American adults choose the content of their diet in relation to their life style and new philosophies of "health food." Most renounce processed foods and advocate a return to "natural" organic food.

Trends such as these have confused more and more Americans as to what really constitutes healthy, nutritious food. We find ourselves in an "age of nutritional anxiety" (22:504). Many health spas offer counseling in nutrition, which might include suggestions for weight control, the recommendation of certain foods over others, or the advocacy of vitamins and supplements to insure one's health. In addition to this formal advice, there is continual exposure to more informal learning. As one "works out," ideas are freely and casually exchanged about health and nutrition. Thus, members are part of a stimulating environment that embraces a healthful way of life. The decision to change one's habits, however, rests ultimately with the individual.

It was the speculation of this researcher that due to their common interest in bodily health, members of a health spa might show a greater concern for nutrition in their daily diet than those not affiliated with a club. This study was developed to provide a dietary profile of health club members and to ascertain the influence of the club's health approach on the member's eating habits. Such an investigation should be of value in learning more about the factors motivating persons to change their food behavior. This knowledge would greatly benefit professionals involved in behavior modification and nutrition education as well as the general public.

Objectives

The absence of literature on the clientele of health clubs creates a void in our knowledge of social groups. It was felt that a dietary study of this population would further define cultural and social factors that shape eating patterns and influence changes in these patterns. The purpose of the study was to assess how effectively the club's orientation toward physical well-being transferred to a member's daily life style, as seen in his dietary habits.

A primary objective of the study was to examine the association between length of membership and the

qualitative level of nutrition in a member's diet. This is expressed in the following hypothesis:

Working hypothesis

There will be a significant difference in the nutritive quality of a health club member's diet based on the length of time he/she has belonged to the club.

Null hypothesis

There will be no significant difference in the nutritive quality of a health club member's diet based on the length of time he/she has belonged to the club.

The researcher also was interested in examining the following questions in relation to the behavior of health spa members:

1. What are the dietary habits of a health club's clientele? Are they concerned about their health as reflected in the food they consume on a daily basis?
2. Do health club members consider themselves knowledgeable about nutrition? Where do they obtain their information? Does this knowledge affect their food selection and consumption?
3. Are factors of age, gender and weight related to a member's dietary habits? Do any of these

variables cause him/her to be more or less
- receptive to a change in diet?

Assumptions

The following assumptions were made in developing this study:

1. It was assumed that the questionnaire was a valid means of collecting data on the dietary patterns of the individuals concerned.
2. It was assumed that the frequency recall was a valid means of obtaining food intake of the sample for the purposes of the study.
3. It was assumed that the responses of the participating members were representative of health club clientele.
4. It was assumed that based on seventy-three respondents an acceptable level of significance would be .05 using chi square as the analytical tool.

Limitations

The researcher recognized the following limitations of the study:

1. Distribution of the questionnaire was geographically limited to three locations of a health spa serving the Ventura-Oxnard-Simi Valley areas.
2. Measurement of food intake by frequency recall is limited in its accuracy by the memory, honesty and diligence of the respondents.

- 3. The food frequency recall provides a qualitative picture of a group's diet but does not quantitatively define nutrient content.
- 4. There was no previous study of this population to serve as guideline.

Definition of Special Terms

Fast-food operations: establishments that sell ready-to-eat food to the general public which can be consumed in a minimum amount of time.

Food faddism: an unusual pattern of food behavior enthusiastically adopted by its adherents and expressed in one of three ways: (1) acceptance of special virtues of a particular food, (2) elimination of certain foods from the diet due to their harmful elements, or (3) emphasis on "natural" foods.

Food behavior: food selection and consumption as the result of the mutual influence of environmental, personal, and biologic factors.

Food frequency recall: a method of recording one's usual intake, in terms of frequency, of various foods. Data can be collected by interview or questionnaire.

Food habits: the way in which individuals in response to social and cultural pressures, select, consume, and utilize portions of the available food supply.

Food patterns: the foods an individual is likely to eat, avoid, or feel indifferent toward in various specified eating situations.

Health club (health spa): a non-residential facility oriented towards physical fitness, that offers long-term membership to the public and provides services such as an exercise room, weight equipment, and pool-sauna-jacuzzi area.

Holistic health: a philosophy of health whereby the individual accepts responsibility for living in a manner that maximizes his health.

Vegetarian: an individual who, for religious, ethnic or philosophic reasons, limits his intake of any or all of the following foods: red meat, fish, fowl, eggs and dairy products.

CHAPTER II

REVIEW OF LITERATURE

Prior to this study, research had not been conducted on the clientele of health clubs. However, much has been written about food behavior and the food habits of populations in general.

Food Behavior

The behavior of man with regard to food is a result of the mutual influence of environmental, personal and biologic factors (45:129). Food is not consumed merely to satisfy physiological hunger, but represents an intricate complex of social, cultural and familial forces operating simultaneously within the individual. Foods are not consumed as isolated units but must be viewed as part of an interrelated pattern where the intake of one food influences another (18:586).

The consumption of food is a physiologic process necessary to sustain life. However, the act of eating is complicated by other motives which cause selection of certain foods over others. Sensory satisfaction is paramount, and our reaction to food is tempered by the food's

organolectic properties: sight, smell, taste, texture, sound during chewing, and the temperature of the food (51:293).

Liking particular foods is a learned behavior (51:294). Infants who are given free selection of new foods will choose what they eat at random. However, various physiologic factors may also be present that dictate our food preferences. Rats and other experimental animals have shown a marked preference for sweeter sucrose solutions over other liquids (58:203). Animals have refused to eat food necessary for their survival when it supposedly did not provide oral satisfaction (58:208).

Bruch (19:645) has said that eating behavior is deeply imbedded in the early psychological development of a person and is tied to environmental cues. What is consumed with pleasure is dependent not only on the food's characteristics but on the external stimuli of the environment during the eating process. Previously non-preferred food may become the preferred when it is consumed in association with pleasant stimuli (58:208).

Schafter and Yetley (45:129-130) view food behavior as an internal patterning experience that seeks to integrate external factors from the environment with internal forces originating within the individual. The external factors include friends, family members, the media and educational influences. Internal stimuli are

that person's self image, attitudes, values, beliefs and needs. Neither the external or internal factors directly shape food patterns. Both are integrated and "processed" within the individual's own patterning scheme: consequently his food behavior is unique to himself.

Wallen's study (56:295) on sex differences in food aversions found women disliked more foods or at least admitted to more aversions than men. Both sexes agreed upon several foods which were particularly undesirable: internal organs, buttermilk, brains, Limburger cheese, pig's feet, and tripe (56:293-4).

Food behavior is shaped by physiologic and psychological factors that include personal and situational associations:

The act of eating can therefore be considered an instrumental reaction which is performed either to (a) escape an undesirable sensory state produced by either food deprivation or other factors, (b) to obtain oral satisfaction related to the food consumed, or (c) to obtain other sensory satisfaction not necessarily related to the food eaten (58:208).

Food Habits

Food habits have been defined as the way in which individuals in response to social and cultural pressures, select, consume, and utilize portions of the available food supply (51:290). Martin (37:204) stated seven factors that may positively or negatively affect a person's dietary habits: availability of different foods, the

economic status of the individual, his/her cultural background, the family eating patterns, educational background, sensory reactions to various foods, and the motivation of the individual.

The family's influence in shaping dietary patterns is perhaps the strongest one felt (13:152). Food habits learned early in life in a pleasurable home environment are the most difficult to change (7:369). ✓

The influence of culture is also strongly felt in a person's food selection. Preferences are the result of food availability, climate, geographical conditions and technological development within the culture (14:438). Foods are eaten in combination with other foods in "culturally determined clusters" (14:427). The mores of society will dictate what kinds of food a person will serve his/her family and how the cooking will be done. Habits can be more readily changed when an individual is moved to a different cultural setting (7:369).

A recognition of cultural dietary patterns and their significance is an important method of evaluating group nutrition. Because different societies adopt their own patterns of eating, an examination of a population's food habits is a valid method of studying that group. These habits characterize sectional or national behaviors: "Ultimately, long-established food habits of a people--

good or bad--furnish presumptive evidence of the nutritional status of the group" (37:3).

The meaning of food changes with the person's age (42:577). During childhood, trying new foods and rebelling against traditional family meals is compatible with this period of personality development and learning independence. Different foods take on symbolic meanings; sweets are used as a reward for good behavior or withheld if the authority figure is upset.

Peers or those slightly older have a marked influence in shaping a child's food selection (15:495). Children past 2-2/3 years will imitate others in their food choices. This emulation is even more pronounced if the two are friends.

In adolescence, food fads and diets become symbols of the "difficult climb to distinctive individuality" (42:579). A teenage male's healthy appetite may be viewed with sexual overtones, whereas the teenage female develops her sexuality by limiting her food intake and concentrating on outward appearance. Pumpian-Mindlin (42:579) sees in this period the establishment of a lifelong pattern that pervades male-female relationships: woman as the giver and man as the taker.

Viewed in a social context, food carries symbolic meaning of great significance. Offering food is a gesture of friendliness, hospitality and good-will. The act of

eating is often shared amid a social setting with friends. Nostalgic memories of home, family and the past take one back to holidays centered around an enjoyment of the "meal ceremony" (23:506). New ideas about food or menus are most readily accepted from friends and family (38:77).

In a social sense, food can also be a status symbol, fulfilling needs of security, identity or power. Exotic, unusual or gourmet foods can be used to present an image of sophistication.

Food is prestige, status and wealth--a mark of what one can afford to buy . . . It is a means of communication and interpersonal relations . . . It symbolizes strength, athleticism, health and success (51:301).

Factors Affecting Food Habits and Consumption

Lionberger (32:67-107) listed four main motivating factors influencing food habits: cultural, social, personal and situational. In elaborating on this thesis, Dickins (14:429) described three types of consumers and their reactions to new food ideas gained through social contact. The first group are the innovators, who will try anything new since they enjoy experimenting. The second group consists of consumers who are more cautious and require urging or assurance from trusted personal contacts before trying a new food. The last group is composed of those consumers who are steeped in their own traditions and will not try new recipes.

Boek (6) examined the association between diet and an individual's social characteristics. She compared the dietary intake of Michigan farmers to their formal and informal social participation, health and level of living. Results of the study showed a positive correlation between the level of social involvement and greater variety of food in the diet (6:243). Higher calcium intakes were found for men with more social participation as well as for younger men with more education. A high calcium intake was also positively related to health.

The nutritive quality of husbands' and wives' diets was investigated by Schafer (44). He found that personal and social factors played the largest role in the family's food selection (44:143). Wives were more influenced in their food choices by classes and short courses on nutrition than were the husbands. For both the husband and the wife, personal preference was the most important consideration in selecting foods. Family health was also a major factor. Nutrition information from the media also raised the quality of the diet.

Attitudinal, motivational and personal factors regarding food choices were examined by Cosper and Wakefield (13). They surveyed women on their food practices, the content of the household diet and their reactions to new food products. The husband's attitude toward foods was the strongest influence on whether or not the

wife would try a new product (13:154). Parents, children and friends were also important forces. A third source of influence were recommendations by a doctor, nurse, or nutritionist. Advertising was least influential.

These same women were most motivated in their food selection by personal and family preferences. Likes and dislikes were considered in terms of taste and nutritive value. Cost was the only "external" variable which exerted any influence on the women's choice of foods.

In discussing the social and personal aspects of food, group affiliation can play a prominent role in shaping dietary patterns. Dwyer et al. (16:376) have described the young American adults' interest in unprocessed and "health" foods, giving rise to a subcultural group which they label "the new vegetarians."

The dietary practices and social attitudes of these vegetarians differ markedly from older vegetarian groups. Instead of being guided by religious or ethnic beliefs, these young people are oriented toward a philosophy that extols the organic and "natural." Dwyer et al. examined their diet with a particular emphasis on the degree of their food proscriptions. Those individuals who were group-affiliated had more extreme food avoidances than those not associated with any group. Many of the subjects had previously followed other dietary regimes. The social influence of group affiliation might be more

important in shaping these vegetarians' eating habits than the individual's personal dietary preferences (16: 381).

Studies by the U.S.D.A. (2) have shown that a person's food consumption patterns are related to his age and gender. Children consume small amounts of food until their teen years when males usually eat twice as much, and females show some increase in their food intake. Consumption levels off in the twenties and thirties as the body's metabolic rate slows and people generally get less exercise. After thirty-five, men drink only half the amount of milk they consumed as teenagers.

At age fifty or sixty, one's food intake declines even more, usually the result of a sedentary lifestyle and less caloric requirements of the body. Meals are more often omitted in this period and soft foods are preferred.

Children younger than ten eat mainly dairy foods and grain products, such as cereal. After age ten they consume a more varied adult-like diet which includes more meat and vegetables. Candy remains popular throughout the teens. Females from age fourteen to sixty generally eat less fruit than their male counterparts. Elderly women decrease their consumption of vegetables, beef and pork, while older men eat less bread and meat and drink less milk.

The Emergence of "Holistic Health"

The American culture is currently preoccupied with "health" food and nutrition. A study by the U.S. Department of Health, Education and Welfare (28:62) showed that 35 million Americans spend \$600 billion annually on unprescribed nutritional supplements. The popularity of holistic health, whereby an individual assumes responsibility for a health-promoting life style that seeks to prevent the occurrence of disease, is rapidly growing. Our attitude towards obesity in particular has become self-conscious, concerned, and somewhat intolerant: "Fat makes us uncomfortable. It seems to us an outward sign of an inner disgrace, a visible confession of lack of willpower, an inability to control appetite" (28:66).

Dietary changes occurring in the Western countries are a result of several factors. Progress in technology and marketing have made a wider variety of foods available. These new foods and food products have added to our awareness of nutrition and increased the need for nutrition education to accompany the changes in our life style. Mass media advertising has also made us more conscious of our dietary shortcomings.

Factors Influencing Changes in Dietary Habits

Despite the good intentions of countless dieters, as a nation we are more overweight today than we were a

decade ago (50:97). The average male weighs six pounds more than he did in 1968. Our cultural eating patterns have changed radically due to economic factors. Less food is raised and prepared at home. With the rising number of working mothers or households where both parents work, more meals are being consumed at fast-food establishments and restaurants where the consumer has little control over what he is served.

Americans snack more often, particularly on empty calories (7:361). Advertising exerts its influence, urging the use of convenience foods or meals that may be of questionable nutritive value. Food fads capture the attention of children and adults, giving rise to subgroups or cults such as vegetarians, followers of the macrobiotic diet, and other dieters (7:362).

Changes occur in the food one selects as he/she grows older. Adults tend to be less discriminating than children towards food due to the disappearance of some taste buds at age twelve (29:549). By this time, most of the taste buds on the cheeks and in the throat have disappeared, and foods that were not enjoyed earlier become more bland and palatable.

Another change occurring with age is that of preferred taste sensations. As one grows older, the preference for sweets is replaced by a desire for more tart,

fruity flavors (29:550). This is especially true in older women.

Adults resist change in their eating habits, particularly if they have known no other way (37:23). The well-known foods provide a sense of security. Individuals will often complain of monotony but will revert to a menu to which they are accustomed day after day. Satisfying immediate physiologic and sensory needs is more gratifying for most than altering one's habits to achieve a long-term goal such as "health."

Memory and association play an important role in a person's reaction to food (18:581). Adjustment to a new diet takes time; in laboratory experiments the food selected by rats is affected by their previous diet for one to two days (46:118). In human terms, this influence would be felt for thirty to sixty days.

Behavioral patterns are not altered by merely furnishing information to an individual. The present behavior must present a problem or threat that is personal, causing him/her to feel a need for change (36:373). Altering one's actions permanently is not an arbitrary process and must be preceded by extensive psychological preparation (42:576-7).

When dealing with the problem of altering maladaptive eating patterns, it is clear that the goal is not simply "education"; it is also "persuasion" . . . there is a critically important difference between knowing "what to do"

and knowing "how to do it." A third--and often underrated--element is "wanting to do it" (36:372).

After acquiring the information and the desire to change, an individual must actively assimilate the new action by engaging in the behavior until it becomes habit (54:513).

Hertzler and Owen (24) studied food pattern changes within a sociological framework. They discussed three variables which have a direct bearing on changing dietary habits: differentiation, relative centrality and solidarity. Differentiation is the capacity to process information or the comprehension of visible symbols as artifacts of behavior (24:381). Families which have a greater diversity of diet are considered more capable of dealing with complex information. More traditional eaters depend on familiar stand-bys and thus are less differentiated.

The relative centrality or accessibility of a family is determined by their interaction with the community or a larger social sphere. Mass media, professionals in the health field, agencies, and formal as well as informal sources of information are all possible means of modifying behavior (24:382). Cultural or self-imposed boundaries may increase or restrict these interactions.

A third variable is that of family solidarity--the cooperation and cohesion which family members

demonstrate in implementing new behavior (24:382-3). The new information will probably be adopted in a family of high solidarity if it increases the survival power of that family. Because food habits are so closely related to the attributes of the family unit (24:384), group support is instrumental in instigating changes of habit.

Gross (22:617) discussed three elements necessary to change behavior. First, the individual must be motivated to change. Secondly, he must be aware of the alternatives open to him. Then the desired behavior must be reinforced continually for it to be repeated. ✓ ✓ ✓

With regard to a change in dietary habits, Gross (22:619) enumerates other important factors. The source advocating the change must be credible and must speak in simple terms. He/she must also appear somewhat disinterested: "In the field of nutritional education it is necessary to develop an image of scientific detachment, motivated by a desire to help mankind, not ourselves" (22:619).

On the more personal level, Gross (22:620) sees the American housewife as the "gatekeeper to the family dinner table." However, her intentions to serve her family nutritious meals are thwarted by the presence of fast-food operations and the frequency with which family members snack.

Gross (22:621) feels that today's teenagers may be more receptive to nutrition education than their parents; they have been immunized against the commercial propaganda. The clientele of health food stores is younger than that of most supermarkets. It is an ironic comment on society's attitude toward diet that we have special stores for "health" food.

V. P. Steelman (47) studied the relationship between food habits and subcultural attitudes and values. He found race and age to be factors in changing eating behavior. Caucasian women in his study were more concerned with their health and sociability when purchasing food, while the black women chose food based on factors of convenience, frugality and social status (47:31). Caucasians over forty-five were the most likely to change their eating habits, followed by black women under forty-five. Blacks over forty-five were most resistant to change.

Changing Dietary Habits

Group discussion and education have been shown to be more effective in inducing dietary change than either lecture or instructions from an authority figure (18:585-6). In the treatment of obesity, Blake (5:646) found that the group approach in a clinic setting resulted in more consistent weight loss in a shorter time period than

did an individual approach. Numerous school programs have utilized the group support method in motivating faculty and students to lose weight (41:647). Behavior modification which makes use of positive support and the social pressure inherent in a group situation will be more effective in changing undesired behavior.

All socially relevant behaviors are learned and maintained through interaction of the individual with relevant persons and situations in the environment . . . The environment, rather than the man, is the agent of control of human behavior (5:646).

Nutrition education is not always enough to cause implementation of new habits (22:621). A study of preschoolers in the north central United States (22) revealed a significant number of undernourished and overfed children. Three-fourths of the mothers had attended nutrition classes, 70% had consulted a family physician in planning the child's diet, and a majority read about nutrition in newspapers, books and magazines (22:621).

In a study by Cosper, Hayslip and Foree (12), fifth-graders received instruction for five months on food and nutrition concepts. These students scored higher on nutrition tests than did the control group without instruction (12:476). However, when dietary recalls taken before and after the instruction were evaluated, the instructed group's diet had not improved. The majority of the children ate less than 50% of

the Recommended Daily Allowance (RDA) of the major nutrients.

A survey of the nutritional knowledge of students was done by Lowell (35) in England. Her results showed that female students knew more nutrition concepts than did the males (35:3A). Those studying home economics, biology and foods scored higher in the tests, as did those who had studied nutrition on their own or read articles from various sources.

The Stanford Three Community Study by Stern et al. (49) was an experiment generated by the Stanford Heart Disease Prevention Program. The purpose of the study was to assess how effectively a mass-media campaign could induce dietary changes within a population. Information regarding the intake of saturated and unsaturated fats and cholesterol was distributed through booklets, leaflets, cookbooks, newspaper articles and public service announcements to three northern California communities. As a result of the public education, the citizens of the three cities showed a marked decrease in their consumption of cholesterol and saturated fats (49:828-9). Polyunsaturated fat consumption also fell slightly. The authors believe this was due to the distinction made between saturated and unsaturated fats which was not effectively communicated to the subjects; consequently most people limited their intake of fats in general.

Another study illustrating the effects of education on motivating dietary change was done by Lenner (30). In his research, fifty-three women predisposed to diabetes were advised of precautionary changes they should make in their diets: exclude sucrose, reduce fat intake and lose weight if necessary. The reasons for altering their habits were explained to the women, who were not yet suffering from diabetic symptoms. Lenner followed his advice with interviews a year later and found that 42% of the subjects had been successful at making the changes in eating habits. One-third of the women had done a fair job. Eleven had been unsuccessful; these were the subjects who had no support from other family members or who were not convinced of a need for change in their eating patterns. Conclusions of the study found dietary change to be the result of an individually-tailored program of education, explanation, support and behavior modification.

A recent study of Brigham Young University showed students' choices of vending machine foods changed significantly when nutrition information regarding the foods was displayed (55). Cards attached to the machines listed the protein, calcium, thiamine, Vitamin C, iron and caloric content of each food. There was a substantial increase in the nutritious foods purchased, such as apples, sandwiches and milk. A corresponding decrease in the sale of candy

and cookies was also observed. Students felt that the caloric information was most influential.

Many consumers lack the knowledge to make beneficial changes in their diet, or they believe that they are practicing sensible eating habits already. The Pillsbury Company's Nutritional Base Line Study (4) demonstrated that consumers in general did not know the components of a well-balanced diet and had inaccurate ideas about the food sources of important nutrients (4:61) When the homemakers were asked to define a well-balanced meal, only 50% showed an understanding of the concept. And 30-40% left out one or more of the basic food groups. The primary concern of the subjects in their food selection was pleasing the family's tastes.

Howard E. Bauman, vice-president of Science and Technology, Research and Engineering at Pillsbury Company, (4:61) attributes our ignorance about nutrition and our unhealthy eating habits to the breakdown of the traditional three meals a day. The evening meal was the only one receiving the full attention of the homemaker in his company's study. Three-fourths of the families interviewed did not eat breakfast as a unit. Dieting and weight control caused a significant number of wives and teenage daughters to skip breakfast and/or lunch.

Obesity

In addition to satisfying hunger, food fulfills basic needs of man such as affection, creativity, distraction, communication and security. Researchers are often overly optimistic in their time estimates for changing or modifying eating habits (39:887). The number of dieters struggling unsuccessfully to shed weight illustrates the difficulty of changing learned food patterns. Obesity plagues anywhere from 9 to 40% of our country's population, depending on the criteria used (39:880).

Civilizations in the past have viewed plumpness and obesity as signs of contentment and prosperity (10:12). Members of royalty were encouraged to gorge themselves on all occasions; the fatter the person, the more prestige and power he/she would command. In contemporary American society, social pressure and recent medical findings have reversed such thinking. Slimness is the prototype and we are inundated by the "think thin" philosophy in all forms of mass media. Persons who are obese do not live as long (50:97) and must pay higher insurance premiums. We are turning to diet and exercise in an attempt to control our weight and maintain our health.

Cameron (10:18) lists social factors of our society that have contributed to our national problem of obesity. Unwanted pounds are often a consequence of weight gain during pregnancy or a change in one's habits,

such as trying to stop smoking. The advent of the automobile and other inventions have made life more comfortable but have virtually eliminated the need for physical activity. Children with overweight parents are more predisposed to obesity in later life. Emotional problems brought on by the complexity and tensions of our society cause many to overeat.

The personality traits of individuals trying to lose weight were studied by Cormier (11). He observed that the subjects considered low achievers lost more weight than high achievers (11:331). Persons who were most obsessed with the need for orderliness lost the least amount of weight overall. The "deferent" subjects--those with the least concern for others' feelings--lost weight more quickly than the others.

Kaufmann, Poznanski and Guggenheim (27) examined Israeli teenagers to determine their opinions on nutrition and the causes for obesity in the group. The overweight subjects were more aware of their food intake than the normal or underweight teens (27:268). Most participants knew that sweets could cause a weight gain. However, the teens with a weight problem also knew that the consumption of bread, nuts and potatoes must be controlled. The overweight teens also reported often missing one meal a day or eliminating after-school snacks.

Leon and Chamberlain (31) studied obese individuals who had successfully maintained a weight loss for over one year in contrast to persons who had regained their lost weight. The regainers responded more to environmental cues unrelated to internal hunger signals when they chose to eat (31:114-5). They consumed high-calorie snacks while watching T.V., between meals, and before bed instead of drinking tea or coffee as did the successful losers.

Frequency Recall as a Method of Diet Evaluation

The expense, time and trained professionals needed to conduct a thorough diet survey are impractical in epidemiological field study conditions (48:335). Consequently, simplified procedures have been devised to obtain and process dietary information. The search for a rapid means of identifying the intake of certain foods, food types and combinations has given rise to the use of frequency intake. This procedure is more economical in terms of time and expense and provides descriptive data of a group or population.

Food frequency recall is a means of describing aspects of food intake concisely through a single interview within a short time limit (48:335). The method utilizes a questionnaire in which respondents indicate the number of times they consume certain foods during a

defined period of time. The responses can then be scored using frequency occurrence, the standard quantities consumed, or by point systems developed by the researcher (9:69).

In certain studies, a qualitative appraisal of dietary habits rather than a quantitative examination of nutrient consumption may be sufficient (9:69). Frequency recall has been used successfully in portraying food patterns where evidence of an association with the diet in general is sought rather than with specific nutrients (1:1099).

A description of dietary habits in terms other than nutrient consumption can be made according to many variables, among which are the spacing and pattern of food intakes, the speed of eating, the changes of food habits and the frequency with which foods are consumed (48:335).

Abramson, Slome and Kosovsky (1) tested the validity of the food frequency interview in a study of Israeli women in 1961. The subjects were interviewed for weekly consumption in serving frequencies and by estimation of the actual quantity of food eaten. For individual foods, a moderate to high correlation was found between intakes obtained with each method (1:1098). For groups of foods, the correlation was lower. The authors concluded that the frequency recall gave a fairly similar picture of the usual consumption of individual foods. As a data collection device, it was reliable

enough to warrant consideration in studies of moderate to large groups where laborious interviews were impractical.

Stefanik and Trulson (48) also tested the validity of this survey technique with eighteen college students by comparing data collected in this manner with data obtained by the 7-day diet record and diet history interview. Their results indicated that both on an individual and group level, data from the frequency recall gave equivalent estimates of qualitative consumption of foods when compared to the other two methods (48:343).

The same researchers then studied a group of Irish men and a group of Italian men for cultural influences that affected incidence of food consumption. The research history interview method had shown that the nutrient intakes for both groups were similar. However, distinct differences were known to exist in the frequency with which each culture ate certain foods. A classification of diet habits was possible using frequency recall. The data revealed that the Italians ate these foods more often than the Irish: prepared luncheon meats, yeast breads, pizza, pasta, chocolate candy, noncitrus fruits, raw vegetables, ice cream, coffee, soft drinks, salted foods and meat portions of $\frac{1}{2}$ pound or more (48:338). The groups were alike in the frequency of eating the following: beef, chicken, fish, bread, eggs, baked goods,

mayonnaise, rice, citrus fruits, and vegetables other than potatoes.

CHAPTER III

METHODOLOGY

Data Collection Device

To obtain descriptive data on the dietary habits of health club members, a questionnaire was developed with the assistance of advisors Dr. Ann Stasch and Dr. Marjory Joseph. The initial questionnaire was tested in conjunction with Home Economics 580, Critique of Literature and Research. The pilot sample consisted of thirty-five randomly-selected health club members who belonged to a spa in the author's hometown. Based on the response of these subjects and additional suggestions from Dr. Stasch, the final draft was further limited in scope and revised.

The questionnaire was five pages long and divided into three parts (Appendix, p. 87). Questions one through four defined the member's length and degree of affiliation with the spa and provided background on his/her formal and informal training in nutrition. Questions five to twenty were designed to provide a profile of the eating and food purchasing habits of the sample. Data obtained in this section were used to describe patterns such as vegetarian eating, amount and type of food consumed at fast-food establishments, the frequency of consumption of

specific foods, and purchasing habits at health food stores. Questions twenty-one through twenty-four described the sample in terms of age, sex, height and weight.

An introduction accompanying the questionnaire assured participants that all information would be kept confidential. Subjects were also invited to make additional comments or suggestions at the end of the questionnaire.

Data Collection: Procedure

The population for the study was comprised of the members of the Coast and Valley Health Spa, a club with which the author has familiarity. After obtaining the consent of the managers, seventy-four subjects were randomly selected from three of the spa's locations in Ventura, Oxnard and Simi Valley.

Sampling of both male and female members was done during different days of the week and at various time periods to obtain the widest possible range of responses. Subjects were chosen during the following time blocks on Monday through Saturday (the spa is closed on Sunday): 9:00-12:00 a.m., 11:00 a.m.-2:00 p.m., 4:00-6:00 p.m., and 6:00-8:30 p.m. These different times provided subjects in different age levels who were students and/or engaged in a variety of occupations.

Employees of the clubs asked to fill out questionnaires also, but their responses were not used in analyzing the data since they were not representative of the average member.

Questionnaires were handed to members at random as they completed a workout and entered the dressing area. It was felt they would be more relaxed and cooperative at this time. The screening process consisted of two questions. The first, "Are you a member of the spa?" eliminated one-time visitors from participating in the survey. If the person answered affirmatively, the second question asked how long he/she had been a member. For the purposes of the study it was necessary to obtain memberships of different durations.

Members who fulfilled both qualifications described above were asked if they had time to fill out a brief questionnaire on health club members. No other information regarding the purposes of the study was given out at any time. The questionnaire was self-explanatory and completion was voluntary.

In answering questions eight and nine, which ascertained frequency of consumption of specific beverages and foods, subjects were asked to estimate serving sizes in accordance with the food models on display in the room. Standard servings of beef, fish, eggs, a hamburger patty, bread, pasta, fruit, cereal, cheese and cottage cheese

were available. It was hoped that the use of food models would help to standardize servings and increase the accuracy of frequency responses. The participants were allowed to complete the questions at their convenience before leaving the spa. Completion time ranged from ten to fifteen minutes. The researcher remained in the vicinity to answer questions, especially with regard to the food models.

Analysis of Data

Seventy-four questionnaires were completed, of which seventy-three were usable. Each questionnaire was labeled with a number for identification and placed in one of six groups depending on the member's length of membership: (1) less than one month, (2) 1-3 months, (3) 4-6 months, (4) 7-12 months, (5) 1-2 years, and (6) three years or more.

Questions eight and nine assessed the nutritive value of the participants' diets. The researcher scored each person's intake frequency with a point system devised for this study. Each food and beverage listed was given a maximum value of six or three points, depending on its essentiality in the diet. "Basic four" foods such as meat, fruit, vegetables and dairy products were considered important sources of nutrients and were assigned a maximum

of six points. Other foods were more "neutral" in their value and these items had a maximum of three points.

Foods that contained unhealthy ingredients, or snack foods that displaced nutritious food with "empty calories" scored three points when none was consumed. Points were lost as consumption of these foods increased. The exception was ice cream, which is often considered a snack or sweet. Because it is a dairy product, ice cream contributes essential vitamins and other nutrients. Therefore one serving received an optimal three points. Two servings a day or more scored lower, because the fat and caloric content became too high.

Each serving block rated a specific number of points, depending on the nutritive contribution of the food in that amount. For each item, either three or six points was optimal and zero was least desirable. Points for each block are recorded on pages two and three of the questionnaire (Appendix, pp. 88-89).

Most "basic four" foods received three points for one serving and six points for two or more portions. In some cases, more than three or four daily servings was not optimal and points were subtracted. An example is homogenized (regular) milk, which is high in saturated fat. More than two servings of this food daily should be replaced with either skim milk or another dairy group item lower in fat.

If the respondent was a vegetarian, the beans and legumes and starch foods became more important sources of protein. In this case these groups' maximum was six points.

The author totaled the points of each questionnaire and the sum was that person's diet score. A perfect score was calculated to be 102, which included a maximum of forty-two points from beverages (question eight) and sixty points from foods (question nine).

The range and mean diet score for each membership group were calculated to see if there was a relationship between diet and length of membership.

Responses on the questionnaires were coded on computer cards and statistically analyzed by a Control Data 3300 Computer at the CSUN Computer Center. Chi square and percentage were calculated. The minimum accepted level of significance for all tests was .05.

CHAPTER IV

FINDINGS OF THE STUDY

The purpose of the study was to obtain descriptive data on the members of health clubs. The results discussed below have been based on the responses of seventy-three members of Coast and Valley Health Spa in Oxnard, Ventura and Simi Valley.

Description of the Sample

Descriptive data on the seventy-three respondents are depicted in Table 1, p. 41. Thirty-five men and thirty-eight women participated in the study. Their ages ranged from eighteen (minimum age for spa membership) to over forty-five. Sixty-seven percent of the members were between the ages of nineteen and thirty-five, while 12% were between thirty-six and forty-five years of age. Those over forty-five represented 15% of the sample and were found mainly in the "3 years or more" membership group.

A majority of the men measured between 5'7½" and 6'0". Over half of the men weighed between 150 and 200 pounds. Almost three-fourths (69%) of the women reported their height to be between 5'4" and 5'7". More than 50%

TABLE 1
DESCRIPTIVE DATA ON THE RESPONDENTS

Description of Data	<u>Number</u>		<u>Percent</u>	
	Men	Women	Men	Women
Age				
18 and under	2	2	6.0	5.0
19 - 25	12	11	34.0	29.0
26 - 35	13	13	37.0	34.0
36 - 45	5	4	14.0	11.0
over 45	3	8	9.0	21.0
No response	--	--	--	--
Total	35	38	100.0	100.0
Height				
under 5'	--	1	--	2.6
5'0" - 5'3"	1	6	2.9	16.0
5'3½" - 5'7"	3	24	8.6	63.0
5'7½" - 5'11"	17	4	48.6	10.5
6'0" - 6'3"	13	--	37.0	--
over 6'3"	1	--	2.9	--
No response	--	3	--	7.9
Total	35	38	100.0	100.0
Weight				
Less than 100 lbs.	--	--	--	--
100 - 125 lbs.	2	7	5.7	18.4
126 - 150 lbs.	4	19	11.4	50.0
151 - 175 lbs.	11	6	31.0	16.0
176 - 200 lbs.	9	3	26.0	8.0
201 - 220 lbs.	5	1	14.0	2.6
over 220 lbs.	3	--	9.0	--
No response	1	2	2.9	5.0
Total	35	38	100.0	100.0

of the female subjects weighed between 126 and 150 pounds.

Length and Degree of Spa Affiliation

The respondents were distributed as evenly as possible between six membership groupings. Table 2, p. 43, shows the exact number of members in each group. Table 3, also on p. 43, depicts the frequency with which members used the club's facilities.

Sixty-seven percent of the members used the club's facilities two or three times a week. Over one-fourth came as often as four to six times a week. (The spa is closed on Sundays.) All five respondents who attended the club once a week had been members for one to two years.

The subjects' length of membership was significantly related to the gender of the subject (Table 4, p. 44). From four months on, female members outnumbered the men. The greatest number of women (11, or 29%) were found in the group belonging to the club three years or more. Male membership peaked in the "one to three months" category with twelve members and declined by 50% or more thereafter.

Knowledge of Nutrition

Over half of the participants rated their knowledge and understanding of nutrition as good (38%)

TABLE 2
LENGTH OF RESPONDENTS' SPA MEMBERSHIPS

Duration of Membership	Number	Percent
Less than 1 month	7	9.6
1-3 months	14	19.2
4-6 months	11	15.1
7-12 months	14	19.2
1-2 years	13	17.8
3 years or more	14	19.2
Total	73	100.0

TABLE 3
MEMBER'S USE OF SPA FACILITIES

Frequency of Use	Number	Percent
4-6 times a week	19	26.0
2-3 times a week	49	67.1
Once a week	5	6.8
Once every 2 or 3 weeks	0	--
Once a month or less	0	--
Total	73	100.0

TABLE 4

CHI SQUARE ANALYSIS: QUESTION 1
VERSUS QUESTION 22

Length of Membership	<u>Sex</u>		Total
	Male	Female	
less than 1 mo.	3	4	7
1-3 mos.	12	2	14
4-6 mos.	5	6	11
7-12 mos.	6	8	14
1-2 yrs.	6	7	13
3 yrs. or more	3	11	14
Total	35	38	73

Chi square = 12.20802
Degrees of freedom = 5
Significance = 0.0320*

* Significant at the .05 level

or excellent (19%). One-third felt their background in nutrition was average and 8% rated their grasp of the subject as inadequate. The most influential sources of information on nutrition were friends or a combination of the resources listed in Table 5, p. 46.

Eating Habits

Three-quarters of the members surveyed were not vegetarian, compared to the 8% who were. Fifteen percent declared themselves to be occasional vegetarians, explaining that they either deleted specific foods from their daily diet or periodically followed a vegetarian menu for personal reasons.

Table 6, p. 47, shows the frequency of avoidance of certain foods by the vegetarians. The meat most commonly left out of the diet was pork, not consumed by 23.5% of the vegetarians. No other single type of meat was shunned; respondents tended to avoid a combination of foods. Beef and lamb was not eaten by 17.6% and the same percentage deleted all meat except fish from their diet. Only one respondent ate no meat or fish.

The author had anticipated that religious or cultural practices might influence the subjects' diets. However, 100% of the population specified no personal beliefs other than vegetarian that affected their food consumption.

TABLE 5
SOURCES OF NUTRITION INFORMATION

Source	Number	Percent
Nutrition/science classes	1	1.4
Books	1	1.4
Friends	4	5.5
Advertisements	1	1.4
Health club counseling/materials	1	1.4
Other	3	4.1
Two of the above	21	28.8
Three or more of the above	39	53.4
No response	2	2.7
Total	73	100.0

TABLE 6
FOODS AVOIDED BY VEGETARIAN MEMBERS

Food	Number	Percent
Pork	4	23.5
Beef/lamb	3	17.6
Beef/lamb/veal/pork/dairy products	1	5.9
All meats except fish	3	17.6
All meats	1	5.9
No response	5	29.5
Total	17	100.0

Diet scores for each individual were calculated based on his/her response to questions eight and nine. The highest possible score was 102 points, 42 from beverages and 60 from foods. The distribution of scores in each membership group is shown in Table 7, p. 49.

The scores of the participants ranged from 45 to 88. The mean score of each group is plotted on Figure 1, p. 50. Those persons who had belonged to the spa for one to three months show a 10% gain in diet score over the new (less than one month old) members. Another gain in the mean diet score is seen after the first six months. Scores from seven months on show a 4.3% increase over scores obtained in months one through six. A 2.4% increase in subjects' scores occurred after one year of membership.

Consumption of Meat and Eggs

Table 8, p. 51, shows those meats eaten most often by nonvegetarian club members. A combination of beef and poultry was consumed most frequently (17.8%), with beef alone as the choice of 15%. Fish and poultry were eaten regularly by 11% of the respondents. Pork was the least popular meat, and only one member specified it as a common diet item.

Over one-fourth (26%) of the subjects felt that their meat-eating habits had changed during their spa

TABLE 7

DISTRIBUTION OF DIET SCORES BETWEEN MEMBERSHIP GROUPS

Duration of Membership	45-54		55-64		Score		75-84		85-94	
	N ^a	P ^a	N	P	65-74		N	P	N	P
					N	P				
Less than 1 mo.	2	2.7	2	2.7	2	2.7	1	1.4	0	--
1-3 mos.	2	2.7	4	5.5	4	5.5	4	5.5	0	--
4-6 mos.	1	1.4	5	6.8	3	4.1	2	2.7	0	--
7-12 mos.	2	2.7	0	--	11	15.0	0	--	1	1.4
1-2 yrs.	2	2.7	1	1.4	5	6.8	2	2.7	3	4.1
3 yrs. or more	0	--	8	11.0	4	5.5	2	2.7	0	--
Total	9	12.2	20	27.4	29	39.6	11	15.0	4	5.5

N^a NumberP^a Percent

FIGURE I

MEAN DIET SCORES OF MEMBERSHIP GROUPS versus LENGTH OF MEMBERSHIP

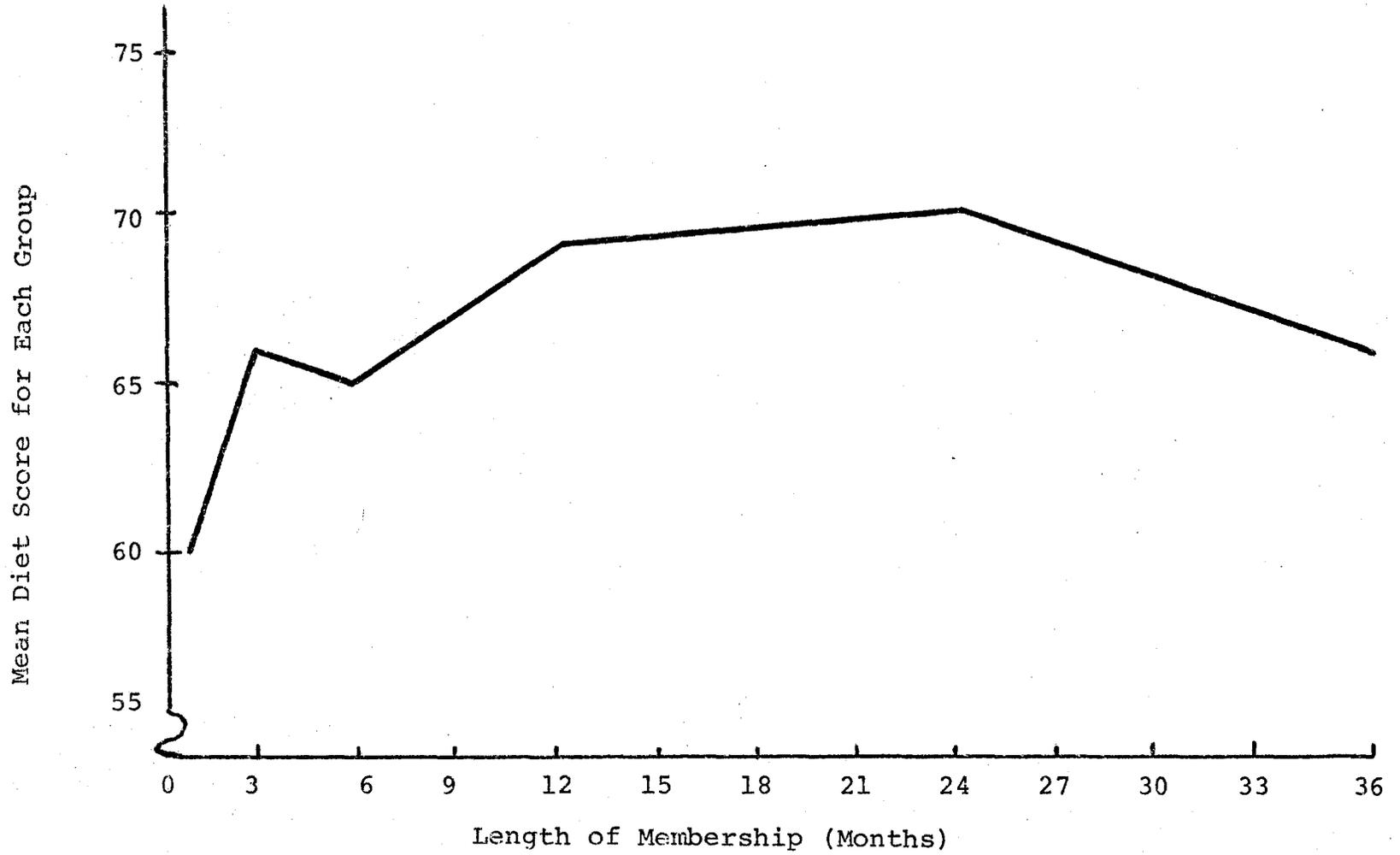


TABLE 8
MEATS CONSUMED MOST FREQUENTLY

Meat	Number	Percent
Beef	11	15.1
Poultry	6	8.2
Pork	1	1.4
Fish	5	6.8
Beef/poultry	13	17.8
Beef/fish	3	4.1
Beef/pork	2	2.7
Beef/poultry/fish	5	6.8
Beef/poultry/pork	2	2.7
Beef/pork/fish	3	4.1
Beef/veal/lamb/fish	1	1.4
Fish/poultry	8	11.0
Fish/poultry/veal	2	2.7
All meat except lamb	1	1.4
No response	10	13.7
Total	73	100.0

membership while 67% responded they had not. Of those who had altered their meat consumption, 60% ate less beef and several members specifically said they ate less steak or hamburger.

Chicken and fish showed the most appreciable gains in consumption (47% and 42% respectively). One member ate more lean meats, two consumed more veal, and one ate more lamb.

Eggs were not eaten at all by 6.8% of the sample. Table 9, p. 53, depicts the consumption of eggs per week by men and women. Statistical analysis showed a significant relationship between the number of eggs consumed weekly and the subject's sex. Over half (52.6%) of the females ate one to three eggs weekly. Their consumption of four or more eggs per week dropped to 13.2% or less.

In contrast, one-fourth of the men ate four or five eggs a week; less than 25% ate only one to three eggs. Almost one-third (31%) of the men averaged more than eight eggs a week.

Meal Patterns

Almost half of the subjects (45%) ate two meals a day, compared to the 27% who ate the traditional three meals a day. Of those who ate only twice daily, 46% ate lunch and dinner while 36% preferred a morning meal and dinner. Table 10, p. 54, shows the various eating patterns of the subjects.

When asked if they ever skip meals, 70% of the subjects responded that they do occasionally and 14% said

TABLE 9
 CHI SQUARE ANALYSIS: QUESTION 12
 VERSUS QUESTION 22

Eggs Eaten Per Week	Sex		Total
	Male	Female	
Do not eat eggs	0	5	5
1-3 eggs	8	20	28
4-5 eggs	9	5	14
6-7 eggs	7	5	12
8 eggs or more	<u>11</u>	<u>3</u>	<u>14</u>
Total	35	38	73

Chi square = 16.09437
 Degrees of freedom = 4
 Significance = 0.0029**

** Significant at the .01 level

TABLE 10
DAILY EATING PATTERNS OF MEMBERS

Meals eaten daily	Number	Percent
3 traditional meals	20	27.4
2 meals	33	45.2
1 meal	12	16.4
4-6 small meals	5	6.8
Snacks throughout the day	1	1.4
No response	2	2.7
Total	73	100.0

that this was a common occurrence. There were eleven respondents (15%) who never skipped meals.

Factors that caused members to miss meals have been listed with their frequency of occurrence in Table 11, p. 56. Lack of time was the most common reason for missing a meal. Lack of hunger was the second most frequent excuse for not eating. Eleven percent said they skipped meals when dieting. Some subjects cited a combination of factors such as being busy or not being hungry as the reason for skipping meals.

Statistical analysis showed a significant relationship between a member's diet score obtained in questions eight and nine and his/her skipping of meals (Table 12, p. 57). Members who had higher diet scores missed fewer meals less often than did those subjects with lower scores.

Patronage of Fast-Food Outlets

Data showing members' weekly patronage of fast-food operations and the items they order most frequently have been shown in Tables 13 and 14, p. 58. Half of the members visited such outlets one to two times a week while thirteen (18%) ate there even more frequently. Almost one-third of the respondents (32%) did not frequent these establishments at all.

TABLE 11
COMMON REASONS FOR SKIPPING MEALS

Reason given	Number	Percent
Busy - not enough time	13	17.8
Dieting	8	11.0
Not hungry	12	16.4
Emotional upset	1	1.4
Busy/dieting	7	9.6
Busy/not hungry	10	13.7
Busy/no food available	1	1.4
Busy/upset	1	1.4
Not hungry/dieting	3	4.1
Not hungry/upset	2	2.7
Not hungry/busy/dieting	4	5.5
Never skip meals	4	5.5
No response	7	9.6
Total	73	100.0

TABLE 12
 CHI SQUARE ANALYSIS: QUESTIONS 8 AND 9
 VERSUS QUESTION 14

Diet Score	<u>Skipping of Meals</u>			Total
	Never	Occasionally	Often	
45-54	2	6	3	11
55-64	3	11	4	18
65-74	4	23	2	29
75-84	2	8	1	11
85-94	1	3	0	4
Total	12	51	10	73

Chi square = 23.15350
 Degrees of freedom = 12
 Significance = 0.0265*

* Significant at the .05 level

TABLE 13
WEEKLY VISITS TO FAST-FOOD OUTLETS

Visits per week	Number	Percent
1-2 times	37	50.7
3-4 times	6	8.2
5-7 times	6	8.2
8 or more times	1	1.4
Do not eat at these outlets	23	31.4
No response	--	--
Total	73	100.0

TABLE 14
ITEMS ORDERED AT FAST-FOOD OUTLETS

Item	Number	Percent
Breakfast	10	13.7
Lunch	29	39.7
Dinner	8	11.0
Snack	5	6.8
Beverage	3	4.1
All of the above	1	1.4
No response	17	23.3
Total	73	100.0

Lunch was the most popular meal, purchased by 40% of the clientele. Breakfast and dinner were consumed by 14% and 11% respectively. Snacks and beverages accounted for one-tenth of the member's business.

A positive relationship was seen between a member's knowledge of nutrition and the number of times he/she ate at a fast-foods outlet weekly. Data in Table 15, p. 60, show a significant decrease in fast-food visits as a member rated himself/herself higher in his/her understanding of nutrition.

Use of Supplements

Over half of the respondents (66%) took some form of vitamin or vitamin supplement regularly. Responses varied on the length of time each subject had been taking the supplements; the shortest time period was six months and the longest was thirty years. Twenty-four members did not use these items regularly.

Data showed that the better a member's knowledge of nutrition was thought to be, the more likely he/she was to use vitamins or supplements (Table 16, p. 61).

A significant correlation was also found between the number of times a member bought fast foods weekly and his/her use of vitamins (Table 17, p. 62). Subjects buying convenience foods one to two times a week or not at all were more likely to use supplements in their regular

TABLE 15
 CHI SQUARE ANALYSIS: QUESTION 3
 VERSUS QUESTION 16

Weekly Visits to Fast-Food Outlets	Knowledge of Nutrition				Total
	Inadequate	Average	Good	Excellent	
1-2 times a week	1	17	12	7	37
3-4 times a week	1	3	1	1	6
5-7 times a week	3	1	2	0	6
8 or more times a week	0	0	0	1	1
Do not eat at these outlets	2	3	13	5	23
Total	7	24	28	14	73

Chi square = 31.90048
 Degrees of freedom = 16
 Significance = 0.010*

* Significant at the .05 level

TABLE 16
 CHI SQUARE ANALYSIS: QUESTION 3
 VERSUS QUESTION 18

Regular Use of Vitamins/ Supplements	<u>Knowledge of Nutrition</u>				Total
	Inadequate	Average	Good	Excellent	
Yes	5	10	23	11	49
No	2	14	5	3	24
Total	7	24	28	14	73

Chi square = 22.72197
 Degrees of freedom = 8
 Significance = 0.0037**

** Significant at the .01 level

TABLE 17

CHI SQUARE ANALYSIS: QUESTION 16
VERSUS QUESTION 18

Weekly Visits to Fast-Food Outlets	Regular Use of Vitamins/ Supplements		Total
	Yes	No	
1-2 times a week	24	13	37
3-4 times a week	1	5	6
5-7 times a week	2	4	6
8 times or more	1	0	1
Do not eat at these outlets	21	2	23
Total	49	24	73

Chi square = 29.74412
Degrees of freedom = 8
Significance = 0.0002**

** Significant at the .01 level

diet than those members visiting fast-food establishments more often.

Members' Purchasing Habits at
Health Food Stores

Approximately one-fourth of the sample bought food in health food stores regularly, while almost three-fourths did not. The majority of health food store clients had been purchasing such products for three years or more.

A significant relationship was found between a member's knowledge of nutrition and his/her purchasing habits at health food stores (Table 18, p. 64). The more nutrition information a respondent had, the more likely he/she was to buy items regularly in a health specialty store.

A positive correlation was also seen between a member's diet and his/her patronage of health food stores (Table 19, p. 65). Vegetarians were more likely to shop in these stores than nonvegetarians.

Members who shop regularly at health food stores also were found to use vitamins or supplements on a more regular basis than those not shopping at these types of food stores (Table 20, p. 66). And such shoppers ordered significantly less food at fast-food outlets than those not frequenting health food stores (Table 21, p. 67). When they did order convenience foods, the most common

TABLE 18

CHI SQUARE ANALYSIS: QUESTION 3
VERSUS QUESTION 19

Regular Patronage of Health Food Store	<u>Knowledge of Nutrition</u>				Total
	Inadequate	Average	Good	Excellent	
Yes	0	2	10	8	20
No	7	22	18	6	53
Total	7	24	28	14	73

Chi square = 14.22779
Degrees of freedom = 4
Significance = 0.0066**

** Significant at the .01 level

TABLE 19
 CHI SQUARE ANALYSIS: QUESTION 5
 VERSUS QUESTION 19

Regular Patronage of Health Food Store	<u>Vegetarian Diet</u>			Total
	Yes	No	Occasionally	
Yes	6	11	3	20
No	0	45	8	53
Total	6	56	11	73

Chi square = 16.16063
 Degrees of freedom = 5
 Significance = 0.0064**

** Significant at the .01 level

TABLE 20

CHI SQUARE ANALYSIS: QUESTION 18
VERSUS QUESTION 19

Regular Patronage of Health Food Store	Regular Use of Vitamins/ Supplements		
	Yes	No	Total
Yes	18	2	20
No	31	22	53
Total	49	24	73

Chi square = 7.22539
Degrees of freedom = 2
Significance = 0.0270*

* Significant at the .05 level

TABLE 21
 CHI SQUARE ANALYSIS: QUESTION 17
 VERSUS QUESTION 19

Items Ordered at Fast-Food Outlets	Regular Patronage of Health Food Store		
	Yes	No	Total
Breakfast	2	8	10
Lunch	3	26	29
Dinner	3	5	8
Snack	4	1	5
Beverage	0	3	3
All of the above	0	1	1
Total	12	44	56

Chi square = 16.69384
 Degrees of freedom = 6
 Significance = 0.0105*

* Significant at the .05 level

item purchased (by 20%) was a snack instead of a meal. Forty percent of health food store shoppers did not eat at fast-food establishments at all.

Changes in Dietary Habits During Spa Membership

When subjects were asked whether or not they felt their eating habits had changed during their club membership, over half (56%) said that they had. Table 22, p. 69, identifies the ways in which these forty-one members felt their diets had been altered. Seven members said that all five responses on question 20 (second half) were applicable, while thirty-three subjects chose one or a combination of the statements. The major areas of change were eating fewer snacks, eating less food overall and dieting more frequently.

Thirty-two members (44%) did not feel their diets had changed in any discernible way during their attendance at the spa.

Seventeen members whose dietary patterns had changed also showed significant changes in their meat-eating habits (Table 23, p. 70).

Additional Comments of Respondents

Two members made additional observations on changes they had made in their diets since joining the health club. One female felt that the increased amount of exercise she was getting had diminished her appetite,

TABLE 22
AREAS OF DIETARY CHANGE

Change in diet	Number	Percent
a - More aware of good nutrition	2	2.7
b - Eat fewer snacks, less "junk" food	4	5.5
c - Eat less food during the day	1	1.4
d - Diet more to control weight	2	2.7
e - Change in actual foods consumed	1	1.4
a + b	2	2.7
†a + d	3	4.1
c + e	3	4.1
a + b + e	7	9.6
c + d + e	1	1.4
a + b + c + d	4	5.5
b + c + d + e	2	2.7
a + b + c + d + e	7	9.6
No response	34	46.6
Total	73	100.0

† Pluses indicate more than one response

TABLE 23

CHI SQUARE ANALYSIS: QUESTION 11
VERSUS QUESTION 20

Change in General Dietary Habits	Change in Meat Consumption		
	Yes	No	Total
Yes	17	19	36
No	2	30	32
Total	19	49	68

Chi square = 18.48284
Degrees of freedom = 2
Significance = 0.0001**

** Significant at the .01 level

which was the opposite effect she had expected. She also depended less on animal sources of dietary protein and was enjoying raw foods more often.

A male member who had belonged to the spa for four to six months commented that in the past three months he had lost thirty-five pounds due to the increased physical activity at the club and dietary changes he had made.

ANALYSIS OF RESULTS OF HYPOTHESIS TESTING

A primary objective of the study was to ascertain if the nutritive quality of a member's diet improved the longer he/she had been a member. Chi squares were determined on various sets of data to determine if the null hypothesis stated in the Introduction might be rejected. All results, whether significant or not, are discussed below.

NULL HYPOTHESIS: There will be no significant difference in the nutritive quality of a health club member's diet based on the length of time he/she has belonged to the club.

Members' diet scores, calculated on the basis of their food and beverage frequency intakes showed a progressive increase from group one's scores (new members) to group five's scores (one-to-two-year members). The scores of those who have been members for three years or

more dropped slightly but still showed an increase over new members. Statistical analysis showed no significant relationship between diet score and length of membership at the .05 level. Therefore the null hypothesis is accepted. A trend toward correlation of diet score and membership duration is possible as the data were significant at the .1 level.

There was no significant relationship at the .05 level found between length of membership and the members' knowledge of nutrition. These two variables were possibly correlated however, as they were significantly related at the .1 level.

Length of membership was not found to be significantly related at the .05 level to members' dietary changes.

Three-way cross-tabulations were performed on several combinations of variables that explored membership and dietary characteristics. The following were found to have no significant relationship at the .05 level:

1. Length of Membership associated with Diet Score associated with Change in Dietary Habits
2. Knowledge of Nutrition associated with Diet Score associated with Change in Meat-Eating Habits

3. Length of Membership associated with Knowledge of Nutrition associated with Diet Score.

The Influence of Height, Weight, Age and Sex on Members' Dietary Habits

Height and weight were evaluated for their influence on the members' dietary patterns. The data revealed no significant relationships.

A significant relationship was seen between the gender of the members and their weekly consumption of eggs. This relationship is discussed on p. 52 and is depicted in Table 9, p. 53.

The age of the subject was significantly related to changes in his/her meat-eating habits (Table 24, p. 74). The tendency to alter meat consumption was greatest between the ages of 19-25. Thereafter subjects were less apt to change the meats in their diet, with those members over 45 the least likely to experience change.

TABLE 24

CHI SQUARE ANALYSIS: QUESTION 11
VERSUS QUESTION 21

Age	Change in Meat Consumption		
	Yes	No	Total
18 and under	0	4	4
19-25	11	12	23
26-35	5	21	26
36-45	5	4	9
over 45	3	8	11
Total	24	49	73

Chi square = 20.30427
Degrees of freedom = 8
Significance = 0.0092**

** Significant at the .01 level

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The past decade has seen a surge of interest in physical fitness and nutrition. One aspect of this national concern for health has been the growing popularity of the health club or spa. Little research had been done on the clientele of these clubs; consequently, this study was undertaken to augment the information known on this social group. The author was particularly interested in obtaining descriptive data and determining the dietary characteristics of this population. A primary objective of the research was to ascertain if the nutritive quality of a member's diet was related to his length of spa membership.

Seventy-three usable questionnaires were collected from randomly-selected members of the Coast and Valley Health Spa in Ventura, Oxnard and Simi Valley. Each subject was given a diet score, based on his/her frequency intake of specific beverages and foods. All other responses were analyzed by chi square and percentage. The minimum level of significance used for all chi square calculations was .05.

Thirty-five men and thirty-eight women comprised the sample. Respondents were representative of the general population in terms of height, weight and age. Subjects were evenly divided into six membership groupings ranging from new members of less than one month to members for three years or longer.

The majority of members used the spa facilities two to three times a week, the amount suggested by club personnel for optimum results in a fitness program. More than half the members felt their knowledge and understanding of nutrition was above average. This information came from many sources, including friends, literature, health club counseling or hand-outs, and the mass media. Those members with greater knowledge used vitamins and shopped at health food stores on a more regular basis than those with less nutrition information.

One-fourth of the members were strict or occasional vegetarians who avoided a variety of meats and dairy products. Pork, beef and lamb were most often excluded from these subjects' diets. No other religious or cultural beliefs dictated dietary habits. Vegetarian members were also more apt to shop at health food stores regularly.

Beef, poultry and fish were the meats consumed most frequently by nonvegetarian respondents. Over one-fourth of the members felt their meat-eating habits had

changed during their club membership. For most, this was reflected in a decreased consumption of beef and pork and an increase in the number of meals with chicken and fish.

Significantly more eggs were consumed by the male members than by the females.

A majority of the subjects ate two meals a day rather than the traditional three. These two meals were eaten most often at noon and in the evening. Over three-fourths of the members skipped meals occasionally or often, citing lack of time, lack of appetite, or dieting as the reasons.

Over half the respondents visited fast-food establishments once a week or more often. The most popular item was lunch. A member's knowledge of nutrition and vegetarian habits affected how often he/she purchased these convenience foods.

The majority of subjects took vitamins or supplements regularly. Only one-fourth (mainly the vegetarians) shopped at health food stores often. Knowledge of nutrition helped determine a member's use of supplements and patronage of health food stores.

In examining the mean diet score for all six membership groups, the scores increased as the membership lengthened. Over half the members felt their dietary habits had changed since joining the spa. The greatest

areas of change were dieting more often, eating less snack or "junk" food, and eating less food overall.

The data were analyzed in terms of the previously formulated hypothesis. The data did not support the postulate that a member's diet score, representing the nutritive quality of his/her diet, was related to that person's length of membership. The null hypothesis was accepted: There will be no significant difference in the nutritive quality of a health club member's diet based on the length of time he/she has belonged to the club.

RECOMMENDATIONS FOR FURTHER RESEARCH

The recommendations for further research are:

1. To conduct a similar study using a larger sample of the same population.
2. To conduct a similar study on male health club members and compare the results with the same research done on female club members.
3. To design and conduct a study that compares the dietary characteristics of health club members to the population not belonging to a health club.

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APPENDIX

Please complete the following questionnaire to the best of your ability. Place a check or write in the requested information in the space provided. All results will be strictly confidential.

1. How long have you belonged to the health club?

- | | |
|--|--|
| <input type="checkbox"/> less than 1 month | <input type="checkbox"/> 7-12 months |
| <input type="checkbox"/> 1-3 months | <input type="checkbox"/> 1-2 years |
| <input type="checkbox"/> 4-6 months | <input type="checkbox"/> 3 years or more |

2. How often do you use the spa facilities?

- 4-6 times a week
 2-3 times a week
 once a week
 once every 2 or 3 weeks
 once a month or less

3. How would you rate your current knowledge and understanding of nutrition?

- Inadequate
 Average
 Good
 Excellent

4. Where have you learned your information on nutrition? Check all that apply.

- Nutrition and/or science classes
 Books
 Newspaper
 Other literature
 Friends
 Advertising media
 Health club counseling or materials
 Other (please specify) _____

5. Are you a practicing vegetarian?

- Yes
 No
 Occasionally

9. Please check the column that shows how many servings of each food you would normally eat during one day.

	0	1	2	3	4	5+
Meat*	0	3	6	4	2	1
Dairy products (other than milk)	0	3	6	4	3	1
Eggs	6	4	1	0	0	0
Fruit	0	3	6	6	6	6
Orange-yellow vegetables	0	6	6	6	5	3
Green leafy vegetables	0	6	6	6	6	6
Beans, soybeans, legumes	3	3	2	1	0	0
Starchy foods (rice, pasta, potatoes)	3	6	3	0	0	0
Breads, cereals	0	3	5	6	5	1
Ice cream	3	3	0	0	0	0
Pies, cakes, pastries, cookies	3	0	0	0	0	0
Candy	3	0	0	0	0	0

*Meat is the flesh of any animal. This includes poultry, beef, fish, veal, lamb, pork.

10. If you are a vegetarian, please go to question 12. If not, which of the following meats do you eat most often? Check one or more.

beef pork lamb
 poultry veal fish, seafood

11. Have you changed your meat-eating habits during your spa membership?

yes
 no

If yes, which meats do you eat less often? _____
 which meats do you eat more often? _____

12. On the average, how many eggs do you eat in one week?

don't eat eggs
 1-3 eggs
 4-5 eggs
 6-7 eggs
 8 or more eggs

13. Which of the following describes your usual eating pattern during one full day?

- 3 traditional meals
- 2 meals (when? _____)
- 1 meal (when? _____)
- 4-6 small meals
- snacks throughout the day
- other (please specify) _____

14. Do you skip meals that you would normally eat?

- Never
- Occasionally
- Often

15. When you skip meals, what is the reason? Please check all that apply.

- Never skip meals
- Too busy to eat; not enough time
- Dieting
- Not hungry
- Emotional upset
- Other (please specify) _____

16. During the course of one week, how often do you eat food purchased at a fast-food operation?

- 1-2 times a week
- 3-4 times a week
- 5-7 times a week
- more than 7 times a week
- do not eat at fast-food operations

17. When eating at fast-food operations, which of the following do you order most often?

- Breakfast
- Lunch
- Dinner
- Snack
- Beverage

18. Do you take vitamins or supplements on a regular basis?

- yes
- no

If yes, how long have you been taking them? _____

Thank you for taking the time to fill out this questionnaire. Please feel free to make any additional comments below.