

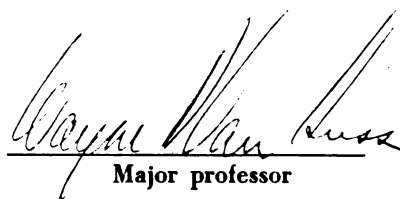


This is to certify that the
thesis entitled
A NATIONAL STUDY OF THE CURRENT PRACTICES OF SECONDARY
COACHES IN RECOMMENDING DIETS FOR ATHLETES

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William Arthur Horwood

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ABSTRACT

A NATIONAL STUDY OF THE CURRENT PRACTICES OF SECONDARY COACHES IN RECOMMENDING DIETS FOR ATHLETES

by William Arthur Horwood

The purpose of this study was to investigate the current dietary practices of high school coaches in competitive season. The recommendations of the coaches were compared with ten selected factors: region of the country, sport coached, size of the community, type of community, high school enrollment, age of the coach, number of years in coaching, educational preparation, number of sports coached and the basis of the recommendations.

Questionnaires were mailed to a 2 1/2% sample of the public high schools in the United States. Individuals coaching the varsity sports of basketball, cross country/track, football, swimming and wrestling were asked to complete the forms. Replies were received from 456 schools, representing an 82.7% return. Reliability of each item in the instrument ranged from $r = .45$ to $r = 1.00$, and the geometric mean of these correlation coefficients was $r = .82$. The chi square technique was utilized to analyze the relationships of the recommendations to the selected background factors.

The following conclusions applicable to this study were drawn:

1. High school coaches enthusiastically recommended beef, eggs, fruit, fruit juices and milk for the athlete.

2. Foods most often contra-indicated by high school coaches were candy, coffee, fried foods, pastries and carbonated beverages.

3. Coaches were uncertain about or did not wish to state their position as to the use of food supplements.

4. Dietary recommendations made by high school coaches vary greatly according to the section of the nation.

5. Coaches from New England and Pacific Coast states allowed their athletes greater latitude in the selection of their diet.

6. West North Central coaches were more restrictive in their dietary recommendations.

7. Except for the restrictive practices of the wrestling coaches, there was very little difference between the recommendations of the coaches of various sports.

8. Coaches from the smaller and more rural areas placed greater limitation on the high school athlete's dietary habits. This was also true for the younger and less experienced coaches.

9. Physical education majors made similar dietary recommendations and exercised more control over the athlete's diet than the minors or the individuals not professionally trained as physical educators. The latter group was most lenient in controlling the athlete's diet.

10. Coaches working in three sports were less restrictive in dietary controls, but favored the inclusion of food supplements in the diet.

11. A major portion of coaches based their dietary recommendations on their own athletic experience. Very few followed medical or nutritional advice.

12. There was little consistency in the manner in which high school athletes were being advised to control their food consumption.

A NATIONAL STUDY OF THE CURRENT PRACTICES
OF SECONDARY COACHES IN RECOMMENDING
DIETS FOR ATHLETES

By

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WAH

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CHAPTER I

INTRODUCTION TO THE PROBLEM

Since earliest times men have attempted to establish a proper diet for individuals participating in strenuous activity. Manipulation of diet in order to improve performance is rooted in the magic and superstition of the past. Primitive cultures still carry on practices that include such things as swallowing powdered lions teeth for greater strength. In the nineteenth century, Liebig (72-1842) gave scientific support to the belief that meat was necessary to the diet because muscle tissue was used up in exercise. Although subsequent work has disproved this particular research, the doctrine of "meat for muscular work" has not been completely discarded.

It is well known that some athletic coaches believe that the inclusion or exclusion of certain foods in the diet impairs or aids performance of the athlete. Some coaches believe that specific foods should be eliminated or added to the diet during the entire competitive season; others restrict or supplement the diet on the day of competition; still others make no recommendations to their athletes.

During the high school years, the coach is an influential person in the school due to the youngsters' desire

for recognition of physical prowess. In the secondary school many of the athletes participate on a year-round basis, which could mean restriction from a food, such as milk, for a period as long as nine months. Since the secondary school population is quite susceptible, particularly to coaches' recommendations, there is a possibility of the extension of his recommended dietary practices to the general school population.

Due to the dearth of evidence concerning current recommendations by coaches, this study was undertaken to:

1. Determine the current practices of secondary coaches in recommending diets for athletes during the competitive season in regards to the geographical sections of the United States.
2. Determine the relationships between factors concerning the coach and his community and the dietary recommendations for the competitive season.

Scope of the Study

This study involved the head coaches of five sports from a nation-wide, randomly selected sample of public secondary schools. The sports involved were basketball, cross country and track, football, swimming, and wrestling. The 2 1/2% sample was representative of the public high school enrollment in the United States by individual states as indicated in the Statistical Abstract of the United States: 1959 (68-1960). A total of 551 schools of the

26,046 high schools in the country were selected for the study. See Appendix A and Figure 1.

Limitations of the Study

The following limitations pertaining to this study have been recognized and, where possible, attempts have been made to negate them:

1. This study was confined to the high school sports of basketball, cross country and track, football, swimming and wrestling.
2. The problem was confined to those foods which are included in the questionnaire.
3. Not all sports were a part of each school's inter-scholastic athletic program.
4. The questionnaire involved in this investigation was accepted at face validity by the investigator.

Definition of Terms

The following terms were defined because of their specific connotations with this study.

Competitive season diet. Those recommendations or restrictions given to the athletes during the entire season, exclusive of the pregame diet.

Secondary school. The school division following the elementary school, comprising most often grades nine to twelve.

Never. Not permitted at any time.

Seldom. From one to three times weekly.

Often. Daily.

Athlete's choice. Players select own diet completely.

Supplements. Those substances not usually considered as part of the normal diet. Calcium, gelatin, phosphates, vitamins and wheat germ are so designated in this study.

Expected response. That response predicted by the chi square technique to distinguish it from the observed response. Expected frequency, theoretical frequency and theoretical observations are also used as synonyms within the discussion of the results.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to investigate the current practices of high school coaches in recommending diets to athletes during the competitive season. The recommendations of these coaches were compared with the selected factors: region of the country, sport coached size of community, type of community, high school enrollment, age of the coach, number of years in coaching, educational preparation, number of sports coached and the basis of the recommendations.

Introduction

Drummond and Wilbraham (22-1948) indicated that concern for the diet of athletes accompanied the growth of sports interest that was evidenced in England during the latter part of the 18th Century. The athlete in the early 1800's used purges to clear away "all the noxious matter that he may have had in his stomach and intestines." After this "purification," unseasoned red meat (preferably underdone), bread and mild beer were prescribed (66-1939). Records of earlier concern for diet and athletic performance have been found. Hippocrates (26-1930), for example denounced certain practices of his day as producing "a dangerous and unstable condition of the body."

Other than an investigation conducted by Bohm (7-1938) there is relatively little organized research dealing with the dietary practices or opinions of coaches, trainers and athletes. In addition to dietary practices, Bohm also investigated other aspects of conditioning. Factual information was obtained from 1936 Olympic coaches and athletes, 1938 Empire Games participants, high school coaches and twelve veteran coaches and trainers.

In the study conclusions were drawn directly from tabulated categorical responses. The categories ranged from "never eat" to "habitually" in the training diet and from "eat on last meal" to "don't eat for two days" prior to the contest.

Bohm came to the following conclusions concerning the training diet:

1. At the present time eggs, other than poached and soft boiled, are held in disfavor and beef is the most popular meat. Since some athletes have certain food idiosyncrasies, and some even seem to thrive on what others cannot eat, no set rules for the athletes' diet are in order.
2. The frequent drinking of whole milk at any meal outside of just before the contest is encouraged....
3. Cheese eating in small quantities and at the evening meal are deemed best....
4. Butter is most highly recommended....
5. The findings indicate that any food can be safely eaten if eaten in moderation and if it agrees with the athlete.

The manner in which foods are prepared was also offered for choice. The most significant factor noted in this respect was that the use of fried foods in the training diet was "emphatically unsatisfactory."

The final results of Bohm's study were stated as follows: "Instead of the coach of today prescribing a set style of diet and field practice for his athletes to follow, he should understand that each athlete is an individual and must be treated as such. The idea of moderation in diet and field practice should be emphasized, and any of the wholesome foods that satisfy physical needs may be eaten."

Position of Medical Associations

A personal letter from Fred V. Hein, Secretary of the Committee on the Medical Aspects of Sports (see Appendix B) reveals that the American Medical Association has not stated an official position on the question of "nutrition for the athlete." However, the secretary did furnish materials which reflect the feelings of the Committee on the Medical Aspects of Sports.

Upjohn, Shea, State and Little (69-1953) believe that feeding an athlete is basically no different from feeding an average citizen. They make the following statements:

. . . There are no magic foods which produced super power or agility. The same meat, milk, eggs, vegetables, fruits, enriched and whole grain breads and cereals that are fundamental to the health of every person are needed by the athletes. The energy needs

of an athlete are considerably more than those of a moderately sedentary person Hence an athlete must consume enough food so that his energy intake will balance his energy output . . .

To the extent that athletes through training actually increase their muscle mass; they have an increased requirement for protein. In practice, however, the liberal protein intakes recommended for the sedentary adult are sufficient for these needs as well as the "Wear and Tear" of replacing old tissue. The high school athlete who is still growing requires more protein than his adult counterpart. In other words, the high school athlete's protein needs are the same as those of his nonathletic contemporaries . . .

Vitamins and minerals take care of themselves in a good diet of a healthy person which presumably an athlete is. Under ordinary conditions extra salt with drinking water is not necessary if adequate salt is used with each meal.

These authors suggested that a coach should give some consideration to the psychological effect of diet controls and that more time should be allowed for the digestion of pre-game meal. They conclude:

In order to fulfill its function, a training table should encourage its members to eat and like a variety of foods--meat, eggs, cheese, fish, fruits, vegetables, and cereals and breads--everyday and to maintain weight at the desired level. These are the principles of good nutrition for athletes as well as nonathletes.

Van Itallie, Sinisterra and Stare (71-1956) summarize their article as follows:

Ability to perform well in an athletic event depends primarily upon the skilled and coordinated use of a well-endowed and properly conditioned body; however, psychological factors such as motivation may be important in determining whether the athlete will win or lose a contest. Awareness on the part of the athlete of having regularly consumed an appetizing diet of wholesome foods at the training table is one of a number of factors that can have a favorable effect on his morale Therefore, by affecting the psychology

of the athlete, the training diet and the pre-event meal can affect his performance.

.
The trained athlete requires no extra protein; however, there is evidence that during rigorous training the diet should contain liberal quantities of protein to permit the muscle mass to increase rapidly and without cost to labile protein sources of elsewhere in the body. Supplementary vitamins probably are not needed in the nutritional program of the athlete who is consuming a nutritious diet. A slight sodium deficiency can impair athletic performance before any clinical signs of sodium lack are discernible. Therefore, during hot weather, adequate amounts of salt and water should be given to replace losses of these substances through the skin. Excess body fat can be an important mechanical handicap for the athlete; yet caution must be exercised in diagnosing obesity in the athlete who is merely overweight in terms of the standard height-weight tables. Many "overweight" athletes are not actually obese and, for this reason, more information measurements than those of weight and stature should be made when the athlete's caloric status is being assessed.

Although there is considerable doubt whether manipulation of an adequate diet can enhance performance, there is no doubt whatever that performance can be significantly impaired when a less than adequate diet is consumed. The best diet for the athlete is one he enjoys and one that at the same time provides a variety of nutritious foods in amounts adequate to maintain his weight at an optimal level.

According to correspondence from the American Medical Association (see Appendix B), the following statement is part of a summary from an elective Clinical discussion session of the Second National Conference on the Medical Aspects of Sports. Mayer, Bullen and Pollack (49-1961) make this comment:

Optimum nutrition for an athlete should be a concomitant rather than a substitute for good physical training. Modifications of the diet may be important at the outset of training to reach a desirable weight. In the course of training depending on the type of sport, other variations in diet may be beneficial, but on the whole

an athlete's diet should not be essentially different from that of any normal person.

An article by Bensley (2-1951) concludes that:

1. The special requirements of training are those imposed by activity. They are best met by a general increase in the consumption of all the ordinary types of food, following the pattern set forth in Canada's Food Rules.
2. Emotional stress is the chief factor influencing the composition and timing of the pre-game or pre-event meal. Acceptability to the individual athlete is the important consideration.
3. Feeding sugar immediately before and during performance protects against hypoglycemia when exertion is prolonged.
4. No justification exists for supplementation of the diet in training or on the day of the contest by special preparations as vitamin concentrates, creatine, glycine, gelatin, phosphates and lecithin.

A letter from G. T. Dickinson, Associate Editor of The Canadian Medical Association (see Appendix B) presents the Canadian Medical Association's position on nutrition for athletes. At a combined meeting on March 8, 1963 of the Canadian Medical Association's National Committee on Physical Education and Recreation and the National Committee of the Canadian Association for Health, Physical Education and Recreation it was agreed:

That athletes should eat a normal well-balanced diet during the training period. They should take their usual food intake the day of the game. No "exotic" or special food is necessary during conditioning or before competition such as carbohydrates, etc. Extra vitamins or minerals are not necessary.

From these remarks it may be concluded that American Medical Association and the Canadian Medical Association

and the Canadian Medical Association believe that nutrition for an athlete is not different in any major respect from that which need be recommended to any normal individual.

Current Opinion

It is not the purpose of this review of literature to comprehensively review the materials pertinent to the fuels for muscular energy. Such a task would be impossible. Instead, the current opinion in regard to nutrition and athletic performance is presented. The continuing question is that of the balance of the diet and the possible supplementation to it which may have beneficial results for the athlete. Therefore, such foods and supplements as carbohydrates, fats, proteins, vitamins, minerals and miscellaneous foods and beverages are briefly considered.

Carbohydrates. Most observers have agreed that carbohydrates are oxidized preferentially for muscular work (43-1920) (47-1928) (3-1932) (16-1934) (33-1935) (34-1938) (15-1939) (27-1942) (78-1942) (35-1946) (36-1946) (36-1936) (5-1954) (19-1959). However, there is evidence that athletic training increases the individual's ability to derive energy from fat metabolism (5-1954) (30-1960) (43-1957) (53-1958) (70-1962). Although carbohydrates yield about 50% as many calories per gram of fat, the burning of carbohydrates yields more calories per liter of oxygen than does the burning of fat. Theoretically then, the use of

carbohydrates as the chief fuel would be advantageous when participating in a sport where the oxygen supply to the tissues may be a limiting factor. Therefore, it is most probable that the capacity to endure prolonged muscular activity is enhanced if carbohydrate stores are replete prior to the exercise period. In general, it appears that athletes should reduce the muscular work load and consume a somewhat high carbohydrate diet several days before an event requiring endurance and prolonged muscular work in order to insure a more complete filling of these stores.

Fats. Although carbohydrates may be preferred to a fat as a muscular fuel, both or any combination of the two can provide fuel for muscular activity. Studies by Grollman and Phillips (31-1954), Edwards and Associates (25-1935), Krogh and Lindhard (44-1920), Dole (21-1956) and Gordon (30-1956) support this position. It should be noted that too great a consumption of fats may tend to inhibit performance due to gastric disturbances or unoxidized fatty acids in the blood. (31-1954), (57-1956), and (53-1958).

Protein. Many of the present day coaches still believe that protein is the primary source of muscular energy despite experimental evidence to the contrary. This theory has been refuted by such researchers as Chittendon (14-1904), Zuntz (80-1911), Cathcart (12-1926) and Yamaji (79-1951). The work done by these investigators indicates that protein

is not metabolized in significant amounts during muscular exercise in the well nourished individual. In other words, if the athlete is a growing boy, he will only need extra protein to meet the need brought about by the increase in muscle mass associated with training and conditioning.

Certain present day researchers suggest that coaches are remiss when they provide their athletes with steaks for the pre-game meal of an endurance type event. Wessen (76-1954), Mayer and Bullen (48-1960) and Guild (32-1960) are of the opinion that an abundant supply of protein in the digestive system and blood stream may actually hasten the fatigue of someone such as a marathoner.

Food supplements. Food supplements include vitamins, minerals, wheat germ, gelatin, minerals, alkalies, ad infinitum. It is not the purpose of this writer to review each vitamin or food supplement, but to present the general consensus of opinion of the medical associations and a majority of the researchers.

The lack of vitamins is evidenced by such diseases as beri-beri and scurvy, and small amounts of administered vitamins yield rapid improvements. Such success has given rise to the practice of giving large doses of vitamins in the hope of achieving improved or outstanding athletic performance. Karpovich (39-1959) believes that the improved performances resulting from vitamin feedings may be the result of the correction of sub-clinical vitamin deficiencies.

This same general reasoning may be applied to the use of wheat germ, gelatin, glycine, creatin, electrolytes and steroids.

Upjohn and his associates (69-1953) conclude "vitamin supplements have a useful role in medicine, but for the average athlete they are an unnecessary expenditure." Their position is supported by the research of Simonson and associates (64-1948), Keys and Henschel (40-1942), Montoye and co-workers (52-1955), Bransby et al (9-1944) and Thomas (67-1957). Editorials in the Lancet (22-1948) and in the Journal of the American Medical Association (24-1955) come out strongly against the indiscriminate use of vitamins by coaches and athletes.

Numerous writers conclude that there is no evidence that athletic performance is improved by supplementing a nutritionally adequate diet with the various supplements. King and associates (42-1942) reviewed the work done on gelatins and glycines and concluded: "Claims made for especial value of aminoacetic acid or gelatin in the treatment of fatigue or increased endurance are unfounded" The claims made by some coaches and investigators for the use of alkalizing agents have been refuted by Robinson and co-workers (58-1937), Robinson and Harmon (59-1941), Keys (41-1943) and Johnson and Black (38-1953).

Miscellaneous. According to Guild (32-1960), the use of alcohol, coffee, tea or other beverages containing caffeine should be restricted to small amounts.

Many coaches have restricted the use of milk by their athletes. Upjohn, et al. (69-1953) reject this Old Wives' Take and suggest: "It is generally easier to plan a well-balanced diet if milk in some form is included in the diet because it is such a good source of high quality protein, calcium, phosphorus and riboflavin." Studies by Nelson (54-1960) and Van Huss and others (70-1962) show no reason to restrict milk, but rather, that it should be a part of the regular diet.

Salt is another item which has drawn the attention of those concerned with nutrition and athletic performance. Medical personnel (69-1953), (48-1960), (32-1960) are of the opinion that under ordinary conditions extra salt with drinking water is not necessary if adequate salt is consumed with meals. An extra amount of salt may be advisable for athletes at the beginning of the season or during periods of extremely hot weather as a precautionary measure.

Summary of the Literature

In summary it must be noted that very little research has been done about the practices of coaches, trainers and athletes as concerns nutrition and athletic performance. In fact only one study, Bohm's was located. The experimental work done concerning the fuels for muscular energy has been extensive. Although many ideas have been put forth by coaches, trainers, athletes and "food faddists," very little has been confirmed by research. In the absence of

sufficient quantitative evidence the American Medical Association and the Canadian Medical Association tend to be conservative. The statement resulting from the combined meeting of the C. M. A. and the C. A. H. P. E. R. (March 8, 1963) sums up the medical viewpoint quite well:

. . . athletes should eat a normal well-balanced diet during the training period. They should take their usual food intake the day of the game. No "exotic" or special food is necessary during conditioning or before competition such as carbohydrates, etc. Extra vitamins or minerals are not necessary.

CHAPTER III

METHODOLOGY

This study was undertaken to investigate the current practices of high school coaches in recommending diets to their varsity athletes. The dietary recommendations made by high school coaches for athletes participating in basketball, cross country and track, football, swimming and wrestling were obtained by questionnaire. The instrument was constructed through the cooperative efforts of selected members of the Department of Foods and Nutrition and the Department of Health, Physical Education and Recreation at Michigan State University.

Selection of the Sample

It was determined that a five per cent sample of the public secondary school enrollment in the United States would be representative and practical. The sample was selected in the following manner:

1. Finding the average high school enrollment in each of the forty-eight states as shown by the Statistical Abstracts of the United States, 1959. (68-1960)
2. Calculating a five per cent figure of each state's total secondary school enrollment.
3. Determining the actual number of schools to be contacted in each state. This was done by dividing the figure obtained in Step 2 by the average size high school in that state.

4. Schools were selected by random sampling from Patterson's American Education (45-1959), in accordance with the procedure presented by Wert, Neidt and Ahmann for the use of random number tables. (74-1954)

Collecting the Data

The questionnaires were coded by a numeric and color system to facilitate distribution, filing and analysis of the data. Identifying numbers and colors were: (1) blue--basketball, (2) buff--cross country/track, (3) yellow--football, (4) green--swimming and (5) white--wrestling.

One set of the questionnaires, a business reply envelope and a cover letter were mailed to the principal of each school on March 28, 1960. This administrator was requested to distribute the appropriate forms to the respective coaches and then to return the completed forms. A sample of these forms, together with the covering letter which accompanied them, appear in Appendix C.

Approximately five weeks after the original checklists were mailed, a follow-up letter (see Appendix C) was mailed to those from whom completed questionnaires had not yet been received. Three weeks later a second follow-up letter (see Appendix C) was sent. Due to the lateness in the school year, further correspondence seemed to be inadvisable during the academic year.

In order to improve the percentage of returns, another complete set of questionnaires and cover letters (see Appendix C) were mailed on September 14, 1960. Postal cards were

mailed to those not responding after two weeks and once again after four weeks. Since this contact brought relatively few returns, further follow-up letters were not utilized. Percentage of returns at this time was 45.4%.

In an attempt to realize at least an 80% return, several decisions were made. It was determined that a 2 1/2 per cent sample would be adequate. The decision to reduce sample size was made principally to permit concentrated effort on the remaining non-respondents. Using the 5% sample, from the practical standpoint, it was just not possible to concentrate effort in that large a sample. In initiating the study it was known that a 2 1/2% sample could be used, but it was the opinion that a 5% sample would be somewhat better. In a national study, however, with limited funds it was not a realistic figure.

The reduction in sample size was accomplished by randomly selecting proportionate samples from the forms in hand and from the non-respondents. On September 7, 1961 the questionnaires and a cover letter (see Appendix C) were mailed, not to the administrator of the school, but to the athletic director. Return addressed, stamped envelopes were used in place of the business reply envelopes.

At this same time, personal letters requesting aid in obtaining responses from schools that had not responded were sent to state directors of physical education, college personnel, acquaintances, close friends and relatives. A final letter was mailed to the athletic directors of the

non-respondent high schools in March, 1962. This letter brought in enough responses to realize an 82.7% return. (see Appendix A and Figure 1)

Information on the returned questionnaires was coded and tabulated. The data were punched and verified on 80-column IBM cards. The information required two complete cards per coach. The revised coding appears in Appendix D.

Reliability of the Instrument

A reliability coefficient for the instrument was obtained for each of the twenty-eight foods and supplements. Forty coaches responded to a letter (see Appendix C) requesting that they once again complete the form. The tetrachoric correlation coefficients were determined by the methods described by McNemar (51-1955) and Chesire, Saffir and Thurstone (13-1933). The determined geometric mean of these twenty-eight correlation coefficients was $r = .82$. This figure was high enough to meet requirements for the self-correlation of a written form. (56-1954)

Although the reliability of the entire instrument is good, the coefficients of several individual foods were somewhat low. Table I shows that fish, fowl, honey, ice cream, milk shakes and potatoes yielded fairly low reliabilities. It would seem from these results, that the coaches were generally uncertain about the recommendations concerning these six items.

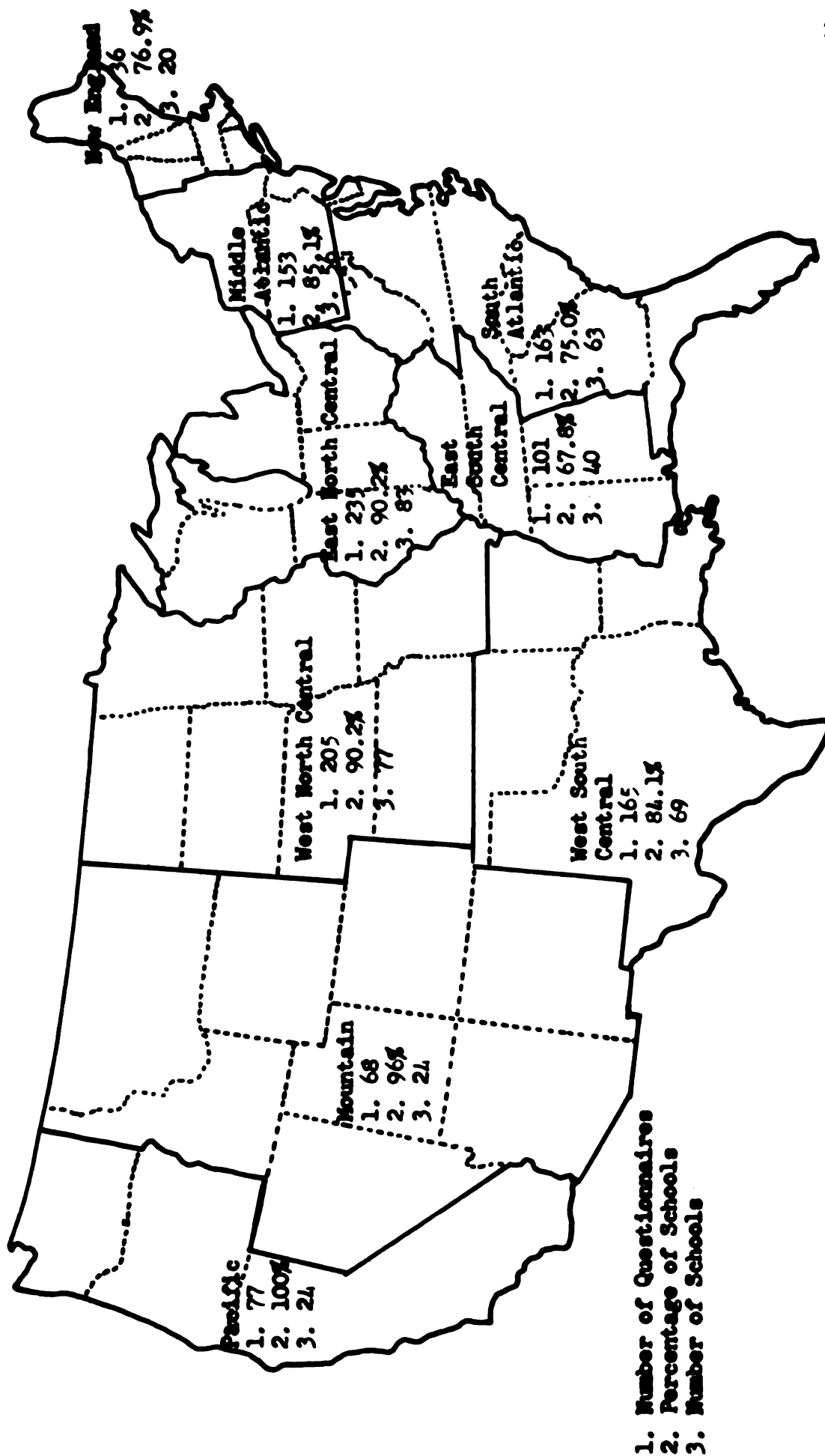


FIGURE I
QUESTIONNAIRE RETURNS: TOTAL NUMBER AND PERCENTAGE OF RESPONSE

TABLE I
RELIABILITY OF THE INSTRUMENT

Food	"r"	Food	"r"
Beans	.91	Fruit Juice	1.00
Beef	.89	Gelatin	.94
Breads	.98	Honey	.60
Butter	.98	Ice Cream	.45
Cabbage	.89	Milk	.97
Candy	.75	Milk Shakes	.45
Calcium	.95	Pastries	.82
Cheese	.96	Phosphates	.88
Coffee	.88	Pork	.98
Eggs	.97	Potatoes	.49
Fish	.49	Soda Pop	1.00
Fowl	.62	Tea	.99
Fried Foods	.99	Vitamins	.99
Fruit	1.00	Wheat Germ	.99
INSTRUMENT	.82		

Statistical Treatment

The chi square technique was most appropriate for analyzing these data. The analyses were completed, insofar as possible, on Michigan State University's electronic computer, MISTIC.¹ Corrections within the tables followed the pattern described by Siegel (63-1956). Statistical significance was selected to be at the .05 level of confidence.

¹The Analysis of Contingency Tables I program was designed and prepared by Francis M. Sims, Specialist, Bureau of Social and Political Research, Michigan State University.

CHAPTER IV

RESULTS

The purpose of this study was to investigate the current practices of secondary school coaches in making dietary recommendations to their varsity athletes, and the relationship between those recommendations and selected background factors, such as, the age of the coach.

Results

Since all of the answers in this instrument gave only categorical information, the Chi Square (X^2) statistical technique was employed. The results of the chi square analyses are presented in Tables III through CXI. Table II presents a composite summary of the percentage of response answer for each food. The initial table of each section contains the specific data showing the total number, percentage response, and chi square and probability values pertinent to recommendations made as related to one of ten background factors.

Corrections within the chi square tables followed the pattern described by Siegel (63-1956). When expected frequencies of less than five in a cell necessitated a combining of cells, the author used one constant pattern. The possible answers for each food ranged from "never eat" to "athlete's choice" and gave the respondent the opportunity to express

his restriction or recommendation for each item. If the expected frequencies were too small in the "never" or "seldom" category, these two were combined. The same thing was done in the case of the "often" and "athlete's choice" responses.

Prior to calculating the chi square values, it was determined to drop the "no response" category from the calculations when the total number was small. The cut-off point was 25, or approximately two per cent of the total N.

Due to the large number of chi square tables computed, it was not practical to include them within this text.¹ Of the 280 chi square values calculated, 180 of them were found to be significant at the previously selected .05 level of confidence. According to Wilkinson (77-1951), this number is sufficiently great enough to indicate a non-chance occurrence of these results.

The figures for the percentage of response by answer for each of the sectional tables were rounded off to the nearest whole number. Answers were coded according to the following legend:

<u>Recommendations</u>	
0	no answer
1	never
2	seldom
3	often
4	athlete's choice

¹ Those interested in these statistical tables may contact the Human Energy Research Laboratory, Department of Health, Physical Education and Recreation at Michigan State University.

The results are presented in ten areas that include the following background or associated factors:

1. Geographical section of the country
2. Sport coached
3. Size of the community
4. Type of community
5. High school enrollment
6. Age of the coach
7. Number of years of coaching
8. Preparation in physical education
9. Number of sports coached
10. Basis of recommendations

Composite Response

Table II indicates that high school coaches generally recommended that their athletes include in their diets the following foods: beans, beef, bread, butter, cabbage, cheese, eggs, fish, fowl, fruit, fruit juice, gelatin, honey, ice cream, milk, potatoes, tea, vitamins and wheat germ. Coaches' opinions upon the consumption of calcium, milk shakes and pork were less definite, but neither were greatly restricted. Those foods which were contra-indicated were candy, coffee, fried foods, pastries and carbonated beverages.

There was a high percentage of "no answer" responses to the four food supplements: calcium (8.5%), phosphates (10.7%), vitamins (7.5%) and wheat germ (8.0%). The chi square technique was applied to determine if this response to the supplements differed significantly from that shown for the other twenty-four items. Individual chi square values were: $\chi^2 = 49.2$ for calcium, $\chi^2 = 64.6$ for phosphates,

TABLE II
COMPOSITE DISTRIBUTION OF ANSWERS

Food	Percentage of Response By Answer					
	*	0	1	2	3	4
Beans	--		3.1	24.3	18.5	54.2
Beef	--		--	5.0	61.7	33.3
Breads	--		.3	15.0	38.4	46.2
Butter	--		1.3	17.9	35.1	45.8
Cabbage	--		5.0	25.9	20.2	48.8
Candy	--		15.5	52.4	4.9	27.3
Calcium	8.5		11.7	15.6	13.4	50.8
Cheese	--		3.2	25.0	25.9	45.8
Coffee	--		29.0	25.9	1.7	43.4
Eggs	--		.1	5.0	56.8	38.2
Fish	--		.7	15.3	31.6	52.4
Fowl	--		1.0	15.4	28.5	55.1
Fried Foods	--		20.4	49.7	3.0	26.9
Fruit	--		.1	1.1	68.6	30.2
Fruit Juices	--		.1	1.0	68.4	30.5
Gelatin	--		1.5	11.1	37.5	50.0
Honey	--		1.6	13.3	37.6	47.6
Ice Cream	--		2.3	26.8	21.3	49.6
Milk	--		1.1	6.3	55.7	36.9
Milk Shakes	--		7.2	36.1	13.2	43.6
Pastries	--		21.2	50.4	1.2	27.3
Phosphates	10.7		14.2	26.0	8.4	40.7
Pork	--		7.9	40.1	8.5	43.5
Potatoes	--		.9	17.9	35.8	45.4
Soda Pop	--		30.9	41.0	1.9	26.2
Tea	--		6.2	21.7	18.9	53.1
Vitamins	7.5		3.9	5.3	31.1	52.2
Wheat Germ	8.0		6.1	8.3	21.9	55.7

*0=no answer, 1=never, 2=seldom, 3=often, 4=athlete's choice

$\chi^2 = 46.3$ for vitamins and $\chi^2 = 47.0$ for wheat germ. Each of these values was significant at the .01 level of confidence (51-1955). It would appear that coaches are not familiar with these items, or they may not wish to state their position regarding the use of them.

Background Factors

Introduction to discussion. Presentation and discussion of the relationship of various background factors to dietary recommendations will consist of three major steps. They are:

1. Mention of those foods in which a significant chi square was calculated, but are not further discussed because of the low number of observations involved in the cells contributing most to the total chi square.
2. Discussion of each food which had a significant chi square figure. A table presenting total N, chi square, level of probability and a distribution of N both by number of observations per cell and the respective percentages.
3. A summary of the material presented for each background factor.

Section of the country. Beef and eggs were the only foods found to show no significance between their recommended use and the geographical section of the United States. Five

TABLE III

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO SECTION OF UNITED STATES

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* C=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

other foods yielded significant chi square figures (see Table III), but the number of observations within the cells contributing the most to the total chi square were too small to allow interpretation of these particular chi square tables. Those items were fried foods, gelatin, tea, vitamins and wheat germ.

The data concerning beans are found in Table IV. The W. North Central area had a high percentage of responses in the "never" column, and the E. South Central area a somewhat high percentage of "often" responses. These sources each contributed about one-eighth of the entire chi square value. The coaches of the W. N. Central area restricted bean consumption somewhat, and the E. S. Central coaches recommended beans as a regular part of the diet. Pacific and New England coaches permitted the athlete to control his bean eating.

TABLE IV
RECOMMENDATIONS FOR BEANS ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	* 1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	8	-	23	32	3.1	25.0	-	71.8	100
Middle Atlantic	4	23	32	85	144	2.8	15.9	22.2	59.0	100
E. N. Central	5	54	27	129	215	2.3	25.1	12.6	60.0	100
W. N. Central	14	57	31	97	199	7.0	28.6	15.6	48.7	100
South Atlantic	2	45	34	81	162	1.2	27.8	20.9	50.0	100
E. S. Central	-	19	31	48	98	-	19.4	31.6	48.9	100
W. S. Central	6	46	38	74	164	3.7	28.0	23.2	45.1	100
Pacific	3	8	8	57	76	3.9	10.5	10.5	75.0	100
Mountain	1	21	13	33	68	1.5	30.9	19.1	48.5	100
Totals	36	281	214	627	1158	3.1	24.3	18.5	54.1	100

$$X^2 = 72.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlet's choice

Examination of the breads data in Table V shows less "often" responses from the E. N. Central coaches than expected. There was also an unexpected number of "oftens" from the W. S. Central coaches. The two sources respectively accounted for one-tenth and one-sixth of the total chi square. Fewer of the E. N. Central coaches advised their boys to eat large amounts of bread, while more of the W. S. Central coaches encouraged their athletes to eat bread often. Coaches from the New England and Pacific areas seemed to prefer allowing the boys to do as they wish.

TABLE V
RECOMMENDATIONS FOR BREADS ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	5	7	20	32	-	15.6	21.8	62.5	100
Middle Atlantic	1	28	48	66	143	.7	19.5	33.5	46.1	100
E. N. Central	-	42	61	121	224	-	18.7	27.2	54.0	100
W. N. Central	3	43	79	75	200	1.5	21.5	39.5	37.5	100
South Atlantic	-	21	67	74	162	-	12.9	41.3	45.6	100
E. S. Central	-	3	44	48	95	-	3.1	46.3	50.5	100
W. S. Central	-	14	91	60	165	-	8.4	55.1	36.3	100
Pacific	-	10	19	48	77	-	12.9	24.6	62.3	100
Mountain	-	9	32	27	68	-	13.2	47.0	39.7	100
Totals	4	175	448	539	1166	.3	15.0	38.4	46.2	100

$$\chi^2 = 74.7 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table VI contains the data pertaining to the recommendations for butter. A larger percentage of "often" responses came from the Mountain coaches than expected. The coaches over the country generally recommended butter. The trend of the New England and Pacific coaches was to answer "athlete's choice."

TABLE VI
RECOMMENDATIONS FOR BUTTER ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	5	7	19	31	-	16.1	22.5	61.2	100
Middle Atlantic	2	30	41	68	141	1.4	21.2	29.0	48.2	100
E. N. Central	2	38	64	117	221	.9	17.1	28.9	52.9	100
W. N. Central	6	37	81	75	199	3.0	18.5	40.7	37.6	100
South Atlantic	-	35	56	72	163	-	21.4	34.3	44.1	100
E. S. Central	-	12	34	47	93	-	12.9	36.5	50.5	100
W. S. Central	4	37	63	56	160	2.5	23.1	39.3	35.0	100
Pacific	1	8	23	44	76	1.3	10.5	30.2	57.8	100
Mountain	-	4	35	29	68	-	5.8	51.4	42.6	100
Totals	15	206	404	527	1152	1.3	17.8	35.0	45.7	100

$$\chi^2 = 43.8 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table VII is presented the compilation of the recommendations for cabbage by section of the country. The greatest contribution to the chi square value was made by the W. N. Central coaches (over one-third of the total). The coaches of the W. N. Central states clearly stand out with respect to the rest of the country in their restriction of

cabbage. More of the New England and Pacific coaches let the athlete choose for himself.

TABLE VII
RECOMMENDATIONS FOR CABBAGE ACCORDING
TO SECTIONS OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentage				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	6	2	23	32	3.1	18.7	6.2	71.8	100
Middle Atlantic	6	39	29	68	142	4.2	27.4	20.4	47.8	100
E. N. Central	12	44	47	118	221	5.4	19.9	21.2	53.3	100
W. N. Central	17	73	30	75	195	8.7	37.4	15.3	38.4	100
South Atlantic	4	55	36	68	163	2.4	33.7	22.0	41.7	100
E. S. Central	5	14	26	48	93	5.3	15.0	27.9	51.6	100
W. S. Central	7	36	37	81	161	4.3	22.3	22.9	50.3	100
Pacific	4	12	13	47	76	5.2	15.7	17.1	61.8	100
Mountain	2	19	13	34	68	2.9	27.9	19.1	50.0	100
Totals	58	298	233	562	1151	5.0	25.8	20.2	48.8	100

$$\chi^2 = 57.3 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table VIII presents the sectional responses as regards the coaches recommendations for candy. The data of the New England, N. W. Central, and Mountain states made the greatest contributions to the chi square value. Those respective figures are approximately one-ninth, one-sixth, and one-tenth. New England coaches were more lenient about candy consumption according to the percentage of response in the "athlete's choice" column. W. N. Central coaches responded "seldom" more often than expected and "athlete's choice" less often

to indicate their disfavor of candy in the diet. The most negative group was that one from the Mountain states, as evidenced by a fairly high "never" response and a fairly large contribution to chi square (one-eleventh). The E. S. central coaches were also quite restrictive.

TABLE VIII
RECOMMENDATIONS FOR CANDY ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	* 1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	9	6	17	32	-	28.1	18.7	53.1	100
Middle Atlantic	19	59	13	50	141	13.4	41.8	9.2	35.4	100
E. N. Central	28	114	6	73	221	12.6	51.5	2.7	33.0	100
W. N. Central	30	131	9	31	201	14.9	65.1	4.4	15.4	100
South Atlantic	19	93	6	45	163	11.6	57.0	3.6	27.6	100
E. S. Central	23	45	9	21	98	23.4	45.9	9.1	21.4	100
W. S. Central	31	92	3	37	163	19.0	56.4	1.8	22.7	100
Pacific	10	38	2	27	77	12.7	38.0	2.0	27.0	100
Mountain	20	28	3	16	67	29.8	41.7	4.4	23.8	100
Totals	180	609	57	317	1163	15.4	52.3	4.9	27.2	100

$$\chi^2 = 96.2 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tables II and IX show that calcium was one of the four food supplements that had a significant number of "no responses." The significant chi square data noted in Table IX received its greatest contribution (one-eighth) from the coaches of the E. N. Central states. A greater percentage of these coaches did not reply to the question. They were

TABLE IX
RECOMMENDATIONS FOR CALCIUM ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages						
	#0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
New England	4	3	3	4	22	36	11.1	8.3	8.3	11.1	61.1	100
Middle Atlantic	19	24	22	13	74	152	12.5	15.7	14.4	8.5	48.6	100
E. N. Central	34	32	27	26	116	235	14.4	13.6	11.4	11.0	49.3	100
W. N. Central	11	24	33	39	98	205	5.3	11.7	16.1	19.0	47.8	100
South Atlantic	7	16	35	28	77	163	4.2	9.8	21.4	17.1	47.2	100
E. S. Central	8	7	23	18	45	101	7.9	6.9	22.7	17.8	44.5	100
W. S. Central	8	21	32	22	82	165	4.8	12.7	19.3	13.3	49.7	100
Pacific	5	8	7	5	52	77	6.4	10.3	9.0	6.4	67.5	100
Mountain	6	6	5	6	45	68	8.8	8.8	7.3	8.8	66.1	100
Totals	102	141	187	161	611	1202	8.4	11.7	15.5	13.3	50.8	100

$\chi^2 = 71.3$ P = .001

*0=no answer, 1=never, 2=seldom, 3=often, 4=athlete's choice

either less certain about the use of calcium or more hesitant to reveal their recommendations. Most of the coaches from the New England, Pacific, and Mountain states left the choice up to the athlete.

The percentage of response by sections of the country to the cheese question is tabulated in Table X. More of the W. N. Central group completely restricted cheese from the diet. Coaches from the W. S. Central states responded with a large number of "seldom" answers, while Pacific coast men gave an unexpectedly high number of "athlete's choice" responses. More of the athletes in the W. N. Central and W. S. Central areas are told to limit their intake of cheese, whereas boys in Pacific states have more freedom concerning the consumption of cheese.

TABLE X
RECOMMENDATIONS FOR CHEESE ACCORDING
TO SECTION OF THE COUNTRY

Section of United States	Distribution of N					Sectional Percentages					
	*	1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	5	6	21	32		-	15.6	18.7	65.6	100
Middle Atlantic	7	36	36	62	141		4.9	25.5	25.5	43.9	100
E. N. Central	8	50	54	107	219		3.6	22.8	24.6	48.8	100
W. N. Central	12	53	61	73	199		6.0	26.6	30.6	36.6	100
South Atlantic	3	40	46	72	161		1.8	24.8	28.5	44.7	100
E. S. Central	2	26	20	46	94		2.1	27.6	21.2	48.9	100
W. S. Central	3	54	35	46	164		1.8	32.9	21.3	43.9	100
Pacific	-	13	17	47	77		-	16.8	22.0	61.0	100
Mountain	2	12	24	29	67		2.9	17.9	35.8	43.2	100
Totals	37	289	299	529	1154		3.2	25.0	25.9	45.8	100

$$\chi^2 = 41.0 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Examination of the coffee data presented in Table XI showed the Middle Atlantic and Pacific states to be contributing the major portion of chi square. The percentage of "never" responses of the Middle Atlantic coaches was unusually high, and, as a result, accounted for one-seventh of the chi square. Apparently, these coaches felt quite strongly about restricting coffee from the athlete's diet. Conversely, the Pacific area coaches gave relatively few "never" answers, accounting for one-ninth of the entire figure of significance. The trend in this area then, as in the New England states, was to make the boy responsible for his own decision as to the amount of coffee consumed.

TABLE XI
RECOMMENDATIONS FOR COFFEE ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	*	Distribution of N					Sectional Percentages				
		1	2	3	4	Tot.	1	2	3	4	Tot.
New England	4	5	2	21	32	12.5	15.6	6.2	65.6	100	
Middle Atlantic	56	31	2	54	143	39.1	21.6	1.4	37.7	100	
E. N. Central	58	55	3	101	217	26.7	25.3	1.3	46.5	100	
W. N. Central	71	50	4	75	200	35.5	25.0	2.0	37.5	100	
South Atlantic	52	42	4	62	160	32.5	26.2	2.5	38.7	100	
E. S. Central	27	21	2	46	96	28.1	21.8	2.0	47.9	100	
W. S. Central	36	55	1	73	165	21.8	33.3	.6	44.2	100	
Pacific	12	26	-	37	75	16.0	34.6	-	49.3	100	
Mountain	19	14	2	32	67	28.3	20.9	2.9	47.7	100	
Totals	335	299	20	501	1155	29.0	25.8	1.7	43.3	100	

$$\chi^2 = 37.6 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Before discussing the fish data presented in Table XII, two points must be noted. First, the reliability of the item was low; and second, it was necessary to combine the "never" and "seldom" columns to satisfactorily calculate the chi square. The "seldom-never" data of the Mountain coaches contributed one-third of the chi square value. A large percentage of the New England and Pacific area coaches favored the "athlete's choice" opinion.

TABLE XII
RECOMMENDATIONS FOR FISH ACCORDING TO
SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages					
	*	1	2	3	4	Tot.	1	2	3	4	Tot.
New England	8	2	8	22	32	-	6.2	25.0	68.7	100	
Middle Atlantic	-	23	48	76	147	-	15.6	32.6	51.7	100	
E. N. Central	2	27	69	125	223	.9	12.1	30.8	56.0	100	
W. N. Central	3	33	70	95	201	1.4	16.4	34.8	47.2	100	
South Atlantic	-	18	60	82	160	-	11.2	37.5	51.2	100	
E. S. Central	1	16	22	57	96	1.0	16.6	22.9	59.3	100	
W. S. Central	-	34	57	74	165	-	20.6	34.5	44.8	100	
Pacific	-	5	23	49	77	-	6.4	29.8	63.6	100	
Mountain	2	21	12	33	68	2.9	30.8	17.6	48.5	100	
Totals	8	179	369	613	1169	.6	15.3	31.5	42.4	100	

$$\chi^2 = 43.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XIII reflects the same pattern noted in the analysis of the fish data, in that more coaches from the Mountain states restricted the intake of fowl. This contributed about one-sixth of the chi square value. Once again

more of the New England and Pacific groups preferred to let the athletes control their intake of the specific food under consideration. In the computation of the chi square it was necessary to combine the "never" and "seldom" responses for proper analysis. Fowl was another food with a somewhat low reliability coefficient ($r = .62$).

TABLE XIII
RECOMMENDATIONS FOR FOWL ACCORDING
TO SECTIONS OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	2	7	22	32	3.1	6.2	21.8	68.7	100
Middle Atlantic	1	16	47	82	146	.6	10.9	32.1	56.1	100
E. N. Central	1	26	66	130	233	.4	11.6	29.6	58.3	100
W. N. Central	5	37	61	95	198	2.5	18.6	30.8	47.9	100
South Atlantic	-	25	47	84	156	-	16.0	30.1	53.8	100
E. S. Central	1	20	19	58	98	1.0	20.4	19.3	59.1	100
W. S. Central	1	31	51	79	162	.6	19.1	31.4	48.7	100
Pacific	-	4	20	53	77	-	5.1	25.9	68.8	100
Mountain	2	18	12	36	68	2.9	26.4	17.6	52.9	100
Totals	12	179	330	639	1160	1.0	15.4	28.4	55.0	100

$$\chi^2 = 43.0 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table XIV is presented the compiled fruit data and in Table XV the compiled fruit juice data. These two items are discussed together because, for all intents and purposes, the results are identical. In each case, the greatest contribution to chi square (about one-half) resulted from the

smaller number of New England coaches answering "often" and the larger number of the same coaches answering "athlete's choice." Once again though most coaches said "often," the New Englanders tended to give the option to the high school athletes. One per cent of all the coaches said that the boys should seldom drink fruit juices or eat fruit. It would be interesting to know the reasoning of these coaches. The small number of theoretical observations in the "never" and "seldom" columns necessitated combining the two for the chi square calculations for both of these foods.

TABLE XIV
RECOMMENDATIONS FOR FRUIT ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	* 1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	1	12	19	32	-	3.1	37.5	59.3	100
Middle Atlantic	-	-	103	45	148	-	-	69.5	30.4	100
E. N. Central	-	1	157	66	224	-	.4	70.0	29.4	100
W. N. Central	1	4	141	54	200	.5	2.0	70.5	27.0	100
South Atlantic	-	1	107	54	162	-	.6	66.0	33.3	100
E. S. Central	-	6	67	25	98	-	6.1	68.3	25.5	100
W. S. Central	-	-	122	42	164	-	-	74.3	25.6	100
Pacific	-	-	47	26	73	-	-	64.3	35.6	100
Mountain	-	-	45	22	67	-	-	67.1	32.8	100
Totals	1	13	801	353	1168	.1	1.1	68.5	30.2	100

$$\chi^2 = 20.9 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE XV
RECOMMENDATIONS FOR FRUIT JUICE ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	-	13	19	32	-	-	40.6	59.4	100
Middle Atlantic	-	-	101	45	146	-	-	69.1	30.8	100
E. N. Central	-	2	153	70	225	-	.8	68.0	31.1	100
W. N. Central	1	4	145	53	203	.4	1.9	71.4	26.1	100
South Atlantic	-	2	108	51	161	-	1.2	67.0	31.6	100
E. S. Central	-	3	70	26	99	-	3.0	70.7	26.2	100
W. S. Central	-	1	119	44	164	-	.6	72.5	26.8	100
Pacific	-	-	49	27	76	-	-	64.4	35.5	100
Mountain	-	-	45	23	68	-	-	66.1	33.8	100
Totals	1	12	803	358	1174	.1	1.0	68.4	30.4	100

$$\chi^2 = 17.7 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

The compiled data regarding the sectional dietary recommendations for honey are tabulated in Table XVI. The continued policy of the New Englanders to respond "athlete's choice" was quite apparent. However, the greatest chi square contributions originated in the W. N. Central regions of the United States. Responses of the W. N. Central coaches were proportionately high in the "often" category and low in the "athlete's choice" column, thereby accounting for one-fifth of the entire chi square. Percentage of response from E. S. Central coaches was in the opposite direction and produced another one-fifth of the chi square.

TABLE XVI
RECOMMENDATIONS FOR HONEY ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	6	2	23	32	3.1	18.7	6.2	71.8	100
Middle Atlantic	-	23	48	74	145	-	15.8	33.1	51.0	100
E. N. Central	-	21	87	113	221	-	9.5	39.3	51.1	100
W. N. Central	1	26	101	74	202	.5	12.8	50.0	36.6	100
South Atlantic	4	28	55	69	156	2.5	17.9	35.2	44.2	100
E. S. Central	6	12	19	60	97	6.1	12.3	19.5	61.8	100
W. S. Central	6	25	73	61	165	3.6	15.1	44.2	36.9	100
Pacific	-	6	25	46	77	-	7.7	32.4	59.7	100
Mountain	-	8	27	33	68	-	11.7	39.7	48.5	100
Totals	18	155	437	553	1163	1.5	13.3	37.5	47.5	100

$$\chi^2 = 64.3 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Ice cream had low reliability ($r=.45$). Combination of "seldom" and "never" columns was necessary for adequate analysis. More of the W. N. Central responded "seldom." This contributed over one-fourth of the chi square. Another one-tenth was produced by the E. S. Central coaches, when more of this group answered "often." (See Table XVII)

The tabulation of milk recommendations by the section of the country is presented in Table XVIII. Coaches clearly express their belief that milk is an important item in a young boy's diet. The W. N. Central area restricted consumption somewhat. Their "seldom" data accounted for one-tenth of the chi square. More of the New England and Pacific

TABLE XVII
RECOMMENDATIONS FOR ICE CREAM ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	6	2	24	32	-	18.7	6.2	75.0	100
Middle Atlantic	2	31	37	76	146	1.3	21.2	25.3	52.0	100
E. N. Central	4	64	35	117	220	1.8	29.0	15.9	53.1	100
W. N. Central	10	73	39	81	203	4.9	35.9	19.2	39.9	100
South Atlantic	3	32	38	86	159	1.8	20.1	23.9	54.0	100
E. S. Central	1	22	31	45	99	1.0	22.2	31.3	45.4	100
W. S. Central	4	47	41	72	164	2.4	28.6	25.0	43.9	100
Pacific	1	21	10	44	76	1.3	27.6	13.1	57.8	100
Mountain	2	17	15	33	67	2.9	25.3	22.3	49.2	100
Totals	27	313	248	578	1166	2.3	26.8	21.2	49.5	100

$$\chi^2 = 40.0 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE XVIII
RECOMMENDATIONS FOR MILK ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	2	10	20	32	-	6.2	31.2	62.5	100
Middle Atlantic	2	10	79	56	147	1.3	6.8	53.7	38.1	100
E. N. Central	1	14	116	92	223	.4	6.2	52.0	41.2	100
W. N. Central	3	20	114	66	203	1.4	9.8	56.1	32.5	100
South Atlantic	1	13	90	59	163	.6	7.9	55.2	36.2	100
E. S. Central	-	3	64	31	98	-	3.0	65.3	31.6	100
W. S. Central	4	6	113	42	165	2.4	3.6	68.4	25.4	100
Pacific	-	3	30	43	76	-	3.9	39.4	56.5	100
Mountain	2	3	38	25	68	2.9	4.4	55.8	36.7	100
Totals	13	74	654	434	1175	1.1	6.3	55.6	36.9	100

$$\chi^2 = 41.1 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

coaches responded "athlete's choice." Their response contributed almost one-half of the entire chi square value. These two areas were not in conflict with the general opinion of milk, but continued a policy of "athlete's choice" as for most foods. One-fourth of the chi square value came from the W. S. Central coaches' responding "often" more than others.

The W. N. Central part of the United States was responsible for the major portion of the chi square value computed from the milk shake data. Coaches from those states responded "seldom" more frequently. The W. N. Central states were most restrictive of milk shakes and their responses contributed one-third of the total chi square. Although the New England coaches' data contributed little to the chi square, it was noted that a large percentage of their answers fell into the "athlete's choice" category.

TABLE XIX
RECOMMENDATIONS FOR MILK SHAKES ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	9	1	20	31	3.2	29.0	3.2	64.5	100
Middle Atlantic	14	47	15	68	144	9.7	32.6	10.4	47.2	100
E. N. Central	14	74	28	103	219	6.3	33.7	12.7	47.0	100
W. N. Central	16	99	23	63	201	7.9	49.2	11.4	31.3	100
South Atlantic	7	55	29	69	159	4.4	34.5	18.2	42.7	100
E. S. Central	3	34	13	46	96	3.1	35.4	13.5	47.9	100
W. S. Central	14	50	30	70	164	8.5	30.4	18.2	42.6	100
Pacific	5	29	7	36	77	6.4	37.6	9.0	46.7	100
Mountain	9	21	7	31	68	13.2	30.8	10.2	45.5	100
Totals	83	418	153	505	1159	7.1	36.0	13.2	43.5	100

$$\chi^2 = 46.4 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

The compilations of the recommendations made about pastries by coaches from the various sections of the country are presented in Table XX. Responses in the "never" and "seldom" columns clearly indicated that pastries were contra-indicated insofar as the athlete's diet was concerned. However, two sections of the nation (the New England and South Atlantic states) suggested that, to some extent, the decision should be up to the boy. This position was reflected by a larger than expected number of "athlete's choice" answers than expected. One-fourth and one-seventh of the total chi square came from the respective sections. Another one-seventh of the chi square figure was a result of the W. N. Central data. In this case, the fewer responses found in the "athlete's choice" column reflected little leniency on the part of the W. N. Central coaches.

TABLE XX
RECOMMENDATIONS FOR PASTRIES ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	2	13	-	17	32	6.2	40.6	-	53.1	100
Middle Atlantic	38	72	-	35	145	26.2	49.6	-	24.1	100
E. N. Central	49	109	2	60	220	22.2	49.5	.9	27.2	100
W. N. Central	51	107	4	40	202	25.2	52.9	1.9	19.8	100
South Atlantic	34	69	1	57	161	21.1	42.8	.6	35.4	100
E. S. Central	14	52	3	27	96	14.5	54.1	3.1	28.1	100
W. S. Central	33	84	4	42	163	20.2	51.5	2.4	25.7	100
Pacific	12	41	-	23	76	15.7	53.9	-	30.2	100
Mountain	13	39	-	16	68	19.1	57.3	-	23.5	100
Totals	246	586	14	317	1163	21.1	50.3	1.2	27.2	100

χ^2 - 28.9 P = .01

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tables II and XXI indicate by virtue of the "no response" answers that coaches were either uncertain about the use of phosphates, or that they did not wish to reveal their opinion about phosphates. Twenty-eight of the W. S. Central coaches recommended daily consumption of phosphates. This accounted for approximately one-fifth of the chi square value. It would be interesting to know the reasons for the W. S. Central coaches recommendation of regular intake of phosphates.

In Table XXII is presented the tabulation of the pork data. Fifty per cent of the coaches placed definite restriction on its inclusion in the boys' diets. Only the New England coaches showed much variance with the limitation of pork consumption. These coaches responded "athlete's choice" twice as often as had been expected and thereby accounted for a tenth of the chi square value. Conversely, more of the W. S. Central coaches responded "seldom." Therefore, while more of the W. S. Central group strongly restricted pork in the diet, the New Englanders responses once again suggested that the boys know what they must do.

The potatoes data in Table XXIII was so distributed that it was necessary to combine the "never" and "seldom" columns to obtain the corrected chi square. After doing this, it was apparent that three sections of the nation responded in a manner worthy of note. The "never-seldom" responses from the W. N. Central coaches was enough larger than projected to

TABLE XXI
RECOMMENDATIONS FOR PHOSPHATES ACCORDING
TO SECTION OF THE COUNTRY

Sections of United States	Distribution of N					Sectional Percentages						
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
New England	6	1	4	5	20	36	16.6	2.7	11.1	13.8	55.5	100
Middle Atlantic	20	30	40	8	24	152	13.1	19.7	26.3	5.2	35.5	100
E. N. Central	27	42	62	12	92	235	11.4	17.8	26.3	5.1	39.1	100
W. N. Central	17	33	69	18	68	205	8.2	16.1	33.6	8.7	33.1	100
South Atlantic	17	13	37	15	81	163	10.4	7.9	22.7	9.2	29.6	100
E. S. Central	12	9	25	9	46	101	11.8	8.9	24.7	8.9	45.5	100
W. S. Central	17	16	46	28	58	165	10.3	9.7	27.8	16.9	35.1	100
Pacific	8	11	18	1	39	77	10.3	14.2	23.3	1.3	50.6	100
Mountain	4	16	12	5	31	68	5.8	23.5	17.6	7.3	45.5	100
Totals	128	171	313	101	489	1202	10.6	14.2	26.0	8.4	40.6	100

$\chi^2 = 76.7$ $P = .001$
 *0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE XXII
RECOMMENDATIONS FOR PORK ACCORDING
TO SECTION OF THE COUNTRY

Section of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	8	1	22	31	-	25.8	3.2	70.9	100
Middle Atlantic	13	56	11	65	145	8.9	38.6	7.5	44.8	100
E. N. Central	13	78	21	110	222	5.8	35.1	9.4	49.5	100
W. N. Central	23	91	13	74	201	11.4	45.2	6.4	36.8	100
South Atlantic	12	71	18	61	162	7.4	43.8	11.1	37.6	100
E. S. Central	10	30	10	45	95	10.5	31.5	10.5	47.3	100
W. S. Central	13	84	13	53	163	7.9	51.5	7.9	32.5	100
Pacific	4	21	9	42	76	5.2	27.6	11.8	55.2	100
Mountain	4	27	3	34	68	5.8	39.7	4.4	50.0	100
Totals	92	466	99	506	1163	7.9	40.0	8.5	43.5	100

$$\chi^2 = 48.9 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE XXIII
RECOMMENDATIONS FOR POTATOES ACCORDING
TO SECTION OF THE COUNTRY

Section of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	-	5	6	20	31	-	16.1	19.3	64.5	100
Middle Atlantic	4	26	46	27	143	2.8	18.1	32.1	46.8	100
E. N. Central	1	44	58	119	222	.4	19.8	26.1	53.6	100
W. N. Central	3	52	60	86	201	1.4	25.8	29.8	42.7	100
South Atlantic	-	21	73	63	157	-	13.3	46.5	40.1	100
E. S. Central	-	16	42	37	95	-	16.8	44.2	38.9	100
W. S. Central	1	30	78	52	161	.6	18.6	48.4	32.3	100
Pacific	1	7	19	50	77	1.3	9.0	24.6	64.9	100
Mountain	-	6	32	30	68	-	8.8	47.0	44.1	100
Totals	10	207	414	524	1155	.8	17.8	35.8	45.3	100

$$\chi^2 = 68.2 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

to produce one-eighth of the overall chi square. W. S. Central coaches responded to the "often" category in almost identical proportions.

The carbonated beverage data are presented in Table XXIV. Although the general response was to restrict consumption of "pop," the coaches of the New England states preferred it to be the "athlete's choice." Their proportionately large response in this direction was responsible for an eighth of the chi square value. E. S. Central coaches responded to the other extreme with more "never" answers.

TABLE XXIV
RECOMMENDATIONS FOR POP ACCORDING
TO SECTION OF THE COUNTRY

Section of United States	Distribution of N					Sectional Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
New England	1	14	1	16	32	3.1	43.7	3.1	50.0	100
Middle Atlantic	44	62	1	33	142	30.9	43.6	.7	24.6	100
E. N. Central	61	82	5	73	221	27.6	37.1	2.2	33.0	100
W. N. Central	54	104	3	44	205	26.3	50.7	1.4	21.4	100
South Atlantic	43	80	6	34	163	26.3	49.0	3.6	20.8	100
E. S. Central	45	31	2	20	98	45.9	31.6	2.0	20.4	100
W. S. Central	61	61	3	40	165	36.9	36.9	1.8	24.2	100
Pacific	24	29	-	23	76	31.5	38.1	-	30.2	100
Mountain	29	17	1	21	68	42.6	25.0	1.4	30.8	100
Totals	362	480	22	306	1170	30.9	41.0	1.8	26.1	100

$$\chi^2 = 54.8 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In summarizing the material presented concerning the dietary recommendations made by coaches from the various geographic sections of the United States, a sectional presentation will be attempted. That is, a brief review of the differences noted for each section will be given.

The New England states consistently varied with the comments of the nation's coaches in a very specific manner. A total of twenty-one foods were found to have significant differences in regard to the recommendations made when this section of the country was considered. Except for candy, cheese, ice cream, and phosphates more of the New Englanders indicated that their position was to permit the high school athlete to regulate his own diet.

Middle Atlantic states made only one very restrictive comment. Their reaction to coffee as a beverage was most negative.

Coaches from the E. N. Central states did not recommend a lot of bread for their athletes, but neither did they restrict it to any great degree. This group of coaches refrained from answering the calcium question more than any other group.

It was from the W. N. Central states that the greatest difference of opinion originated. More of these coaches recommended the following foods seldom be included in the diet: breads, cabbage, candy, ice cream, milk, milk shakes, and potatoes. For some reason cheese and beans were actually

in very great disfavor with the W. N. Central coaches. Honey was the only item that was often recommended to be eaten daily by them.

Disagreement with the general recommendations was expressed by the E. S. Central men for beans, honey, and pop. They were inclined (1) to include beans and ice cream in the daily menu, (2) to recommend that not too much honey be eaten, and (3) to request that pop and candy be greatly restricted.

W. S. Central coaches responses favored breads, potatoes and phosphates as daily items in the athlete's diet. Their responses supported milk drinking for athletes.

The Pacific region reflected the same pattern shown by the New England states. As far as this group of coaches, the boys ate beans, breads, butter, cabbage, calcium, cheese, fish, fowl, fruit, fruit juices, milk, and potatoes as often as they pleased. Most of the responses were indicated as "athlete's choice."

Four foods were singled out by the athletic coaches of the Mountain states. More of these coaches recommended butter and disapproved of candy. Fish and fowl were surprisingly relegated to a "seldom" position by this group of coaches.

There were marked differences noted when the recommendations of the coaches from the various sections of the country were compared. The W. N. Central states restricted more items than any other section, and the Pacific and New England states tended to be most lenient in their dietary recommendations.

Sports coached. Individual returns showed that responses were received from 411 basketball coaches, 316 cross country and track coaches, 359 football coaches, 37 swimming coaches, and 80 wrestling coaches. Table XXV reveals that nineteen of the foods in the list received significantly different recommendations when analyzed according to the sport for which the suggestion was being made. Fifteen of them: beef, breads, butter, candy, cheese, fried foods, gelatin, honey, ice cream, milk, milk shakes, pastries, phosphates, potatoes, and carbonated beverages are presented in Tables XXVI through XL. Fish, fowl, pork, and calcium tables are not discussed because the major contributing cells had too few observations.

In Table XXVI is presented the compilation of recommendations made by the coaches of various sports concerning beef. The most obvious and rather expected fact is that no one said that beef should never be eaten. A large enough number of basketball coaches did suggest "seldom" enough times to account for one-fifth of the entire chi square. This group represented only a small portion of the basketball coaches and therefore is not given too serious consideration. However, it was somewhat surprising to find that five per cent of all coaches did answer "seldom" to the question of beef eating. Beef actually was the most accepted item in the entire list of foods.

TABLE XIV

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO THE SPORT COACHED

PERCENT OF RESPONSE BY ANSWER																										
Food	I ²	Prob.	N	Basketball					Track					Football				Swimming				Wrestling				
				#0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4			
Beans	10.6	.90	1158	-	1	7	7	19	-	1	6	5	14	-	1	8	6	16	-	-	-	-	-	2	1	3
Beef	19.8	.05	1176	-	-	2	19	12	-	-	1	16	9	-	-	1	20	10	-	-	-	-	-	-	5	2
Bread	74.9	.001	1166	-	-	4	13	17	-	-	4	10	13	-	-	4	14	13	-	-	-	-	-	3	1	2
Butter	44.4	.001	1152	-	-	5	12	16	-	-	5	9	12	-	-	5	12	13	-	-	-	-	-	3	2	2
Cabbage	14.9	.90	1151	-	1	8	7	18	-	2	7	6	12	-	-	2	8	6	14	-	-	-	-	2	2	3
Candy	27.4	.01	1163	-	4	18	2	10	-	4	14	1	7	-	-	4	17	1	8	-	-	-	2	3	-	1
Calcium	28.5	.05	1202	3	5	5	4	17	2	3	5	3	13	-	2	3	5	5	15	-	1	1	1	1	1	3
Cheese	25.2	.05	1154	-	1	8	8	17	-	1	6	7	12	-	-	1	8	8	14	-	-	-	-	2	2	2
Coffee	15.4	.90	1155	-	10	9	1	15	-	8	7	-	11	-	-	9	8	-	13	-	-	-	-	2	-	3
Eggs	11.3	.90	1177	-	-	2	19	13	-	-	2	14	11	-	-	-	1	18	11	-	-	-	-	-	4	2
Fish	18.3	.05	1169	-	-	5	9	19	-	-	3	9	14	-	-	-	5	11	14	-	-	-	-	1	2	3
Fowl	15.9	.05	1160	-	1	5	9	20	-	-	4	8	15	-	-	-	5	10	16	-	-	-	-	1	2	4
Fried Food	33.4	.001	1168	-	5	18	1	10	-	6	12	1	7	-	-	6	15	1	8	-	-	-	-	2	-	1
Fruit	1.8		1168	-	-	-	-	11	-	-	-	-	8	-	-	-	-	21	9	-	-	-	-	-	5	2
Fruit Juice	1.8		1174	-	-	-	-	11	-	-	-	-	8	-	-	-	-	21	9	-	-	-	-	-	5	2
Gelatin	22.1	.05	1147	-	1	4	11	19	-	-	3	10	13	-	-	1	3	12	14	-	-	-	-	-	4	2
Honey	23.4	.05	1163	-	1	5	11	18	-	-	4	11	12	-	-	-	4	12	14	-	-	-	-	-	4	2
Ice Cream	32.7	.01	1166	-	1	8	8	18	-	-	1	8	13	-	-	1	7	7	15	-	-	-	-	1	3	1
Milk	15.7	.05	1175	-	-	2	19	13	-	-	1	2	13	10	-	-	1	18	11	-	-	-	-	1	4	2
Milk Shakes	69.9	.001	1159	-	1	11	5	16	-	-	2	10	3	12	-	-	2	11	4	13	-	-	-	2	1	1
Pastries	65.4	.001	1163	-	5	18	-	10	-	-	6	12	-	7	-	-	6	17	-	7	-	-	-	3	2	1
Phosphates	28.3	.05	1202	4	4	9	3	15	3	3	6	3	11	-	3	4	8	3	12	-	1	1	2	2	1	2
Pork	26.9	.01	1163	-	2	13	3	16	-	-	3	10	2	11	-	2	13	2	12	-	1	1	3	1	1	
Potatoes	60.2	.001	1155	-	-	6	12	16	-	-	-	4	8	13	-	-	5	13	12	-	-	-	-	3	2	1
Pop	29.3	.01	1170	-	9	14	1	9	-	-	8	10	1	7	-	-	9	13	-	8	-	-	-	3	-	1
Tea	19.2	.10	1156	-	2	7	6	18	-	-	1	6	4	14	-	-	2	7	6	15	-	-	-	1	2	3
Vitamins	6.0	.99	1202	2	1	2	11	17	-	-	1	1	8	14	-	2	1	2	9	16	-	-	-	-	1	4
Wheat Germ	8.1	.95	1201	3	2	3	7	19	-	2	1	3	6	14	-	2	2	2	7	17	-	-	-	-	-	1

* 0=no response, 1=never, 2=seldom, 3=often, 4=athletes choice

TABLE XXVI
RECOMMENDATIONS FOR BEEF ACCORDING
TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	3	Total
Basketball	-	29	228	141	398	-	7.2	57.2	35.4	100
Track	-	14	192	104	310	-	4.5	61.9	33.5	100
Football	-	11	230	114	355	-	3.1	64.7	32.1	100
Swimming	-	4	17	13	34	-	11.1	50.0	38.2	100
Wrestling	-	1	59	19	79	-	1.2	74.6	24.0	100
Totals	-	59	726	391	1176	-	5.0	61.7	33.2	100

$$\chi^2 = 19.8 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XXVII presents the compiled data pertaining to the recommendations made about breads as answered by the five sports coaches. The heavy restriction placed on breadstuffs by wrestling coaches and their hesitancy to answer "often" or "athlete's choice" is responsible for two-thirds of the entire chi square. Other coaches were not inclined to cut down on this food item and for the greatest part recommended its inclusion in the diet. Wrestling coaches may have restricted the consumption of dough products in order to more closely control the weight of the wrestlers.

Table XXVIII reflects the same pattern for butter as was shown for breads in Table XVII. Wrestling coaches who are probably concerned with controlling their athletes' weights, have suggested very strongly that the boys restrict

TABLE XXVII
RECOMMENDED FOR BREADS ACCORDING TO
SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	-	46	150	197	393	-	11.7	38.1	50.1	100
Track	2	45	112	147	306	.6	14.7	36.6	48.0	100
Football	-	43	160	152	355	-	12.1	45.0	42.8	100
Swimming	-	6	12	16	34	-	17.6	35.2	47.0	100
Wrestling	2	35	14	27	78	2.5	44.8	17.8	34.6	100
Totals	4	175	448	539	1166	.3	15.0	38.4	46.2	100

$$\chi^2 = 74.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE XXVIII
RECOMMENDED FOR BUTTER ACCORDING TO
SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	4	58	135	190	387	1.0	14.9	34.8	49.1	100
Track	5	56	101	141	303	1.6	18.4	33.3	46.5	100
Football	2	55	141	154	352	.5	15.6	40.0	43.7	100
Swimming	-	7	9	17	33	-	21.2	27.2	51.5	100
Wrestling	4	30	18	25	77	5.1	38.9	23.3	32.4	100
Totals	15	206	404	527	1152	1.3	17.8	35.0	45.7	100

$$\chi^2 = 44.4 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

their consumption of butter. Their response to the "seldom" answer was large, while the "often" and "athlete's choice" answer was rather low. Combined, these sources were responsible for over one-half of the accumulated chi square. Other than this variation, butter was regarded as a very staple part of the athlete's diet.

The data tabulating the responses on the candy question according to the sport involved are presented in Table XXIX. Swimming coaches show a large percentage of "never" responses but the number is very small. However, the response of the wrestling coaches once again stands out. In this instance, more answered "never" and less "athlete's choice" than had been expected. Totaled, the two categories amount to better than half of the chi square value. The writer would again suggest that the wrestling coaches are concerned with the participants maintaining a certain weight level.

TABLE XXIX
RECOMMENDATIONS FOR CANDY ACCORDING
TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	52	207	20	116	395	13.1	52.4	5.0	29.3	100
Track	44	161	16	86	307	14.2	52.4	5.2	28.0	100
Football	51	194	16	90	351	14.5	55.2	4.5	25.6	100
Swimming	9	11	1	13	34	26.4	32.3	2.9	38.2	100
Wrestling	24	36	4	12	76	31.5	47.3	5.2	15.7	100
Totals	180	609	57	317	1163	15.4	52.3	4.9	27.2	100

$$\chi^2 = 27.4 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulation of the various coaches' recommendations for cheese appears in Table XXX. Track and wrestling coaches did indicate a practice of restricting this dairy product, which was somewhat contrary to the general practices of all coaches. The track coaches showed a small percentage of "never" responses, but the difference between the observed and theoretical frequencies was sufficient to contribute one-ninth of the entire chi square value. Any assumption drawn from these small numbers would not be very tenable but worth noting. Almost one-fifth of chi square resulted from the smaller than expected number of "athlete's choice" selections by the wrestling mentors. The surprising fact was that, despite a tendency for some restriction of cheese, a fairly large percentage of these same men answered "often." In other words, the wrestling coaches were a little less worried about cheese consumption than might first be assumed.

TABLE XXX
RECOMMENDATIONS FOR CHEESE
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	8	90	96	194	388	2.0	23.2	24.7	50.0	100
Track	15	73	75	140	303	4.9	24.0	24.7	46.2	100
Football	7	90	98	158	353	1.9	25.5	27.7	44.7	100
Swimming	2	13	4	15	34	5.8	38.2	11.7	44.1	100
Wrestling	5	23	26	22	76	6.5	30.2	34.2	28.9	100
Totals	37	289	299	529	1154	3.2	25.0	25.9	45.8	100

$$\chi^2 = 25.2 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table XXXI is presented the compilation of recommendations made by the coaches of the five sports for fried foods. There is little doubt that most coaches wanted their athletes to eat very little fried food. However, swimming and wrestling coaches were more restrictive than the other three groups considered. Along with the basketball coaches, these two accounted for approximately half of the chi square value in almost equal amounts. The only difference being that the basketball mentors checked less "nevers" than expected, while the swimming and wrestling coaches answered "never" more often than theorized. The basketballers were just not as firm about restricting fried foods as the others. This was further indicated when the small percentage of wrestling coaches answering "athlete's choice" was noted. Fried foods were not often recommended for large intake by any coach.

TABLE XXXI
RECOMMENDATIONS FOR FRIED FOODS
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	59	206	14	120	399	14.7	51.6	3.5	30.0	100
Track	70	144	9	85	308	22.7	46.7	2.9	27.6	100
Football	70	179	10	92	351	19.9	51.0	2.8	26.2	100
Swimming	13	11	-	9	33	39.3	33.3	-	27.7	100
Wrestling	26	41	2	8	77	33.7	33.7	2.6	10.3	100
Totals	238	581	35	314	1168	20.3	49.7	3.0	26.8	100

$$\chi^2 = 33.4 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XXXII presents the compiled data pertaining to the recommendations about gelatin as answered by the coaches of the five sports considered. As previously noted it had great acceptance by the coaches as a part of the athlete's diet. The greatest reversal of form noted here, was that of the wrestling coaches. An unexpected number of these selected "often" as their recommendation, and as a result produced over a fourth of the total chi square value. Most probably, the wrestling mentors felt that large quantities of gelatin would not add weight to the boys but would include protein benefits.

TABLE XXXII
RECOMMENDATIONS FOR GELATIN
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	6	50	122	213	391	1.5	12.7	31.2	54.4	100
Track	3	31	117	150	301	1.0	10.3	38.8	49.8	100
Football	6	35	142	164	347	1.7	10.0	40.9	47.2	100
Swimming	1	6	9	19	35	2.8	17.1	25.7	54.2	100
Wrestling	1	5	40	27	73	1.3	6.8	40.0	27.0	100
Totals	17	127	430	573	1147	1.4	11.0	37.4	49.9	100

$$\chi^2 = 22.1 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulation of the data involving the responses from the coaches of five sports for honey is shown in Table XXXIII.

The pattern reflected is very similar to one shown for gelatin. The large majority recommended honey or permitted the boys to make the choice. Wrestling coaches stand out because of the large percentage of "often" responses. This unexpected difference was the source of almost a third of the chi square value. One might say that the wrestling coaches were actually enthusiastic about the benefits of eating honey on a daily basis.

TABLE XXXIII
RECOMMENDATIONS FOR HONEY ACCORDING
TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	9	54	124	206	393	2.2	13.7	31.5	52.4	100
Track	4	44	123	137	308	1.3	14.2	39.9	44.4	100
Football	5	44	137	163	349	1.4	12.6	39.2	46.7	100
Swimming	-	5	9	20	34	-	14.7	26.4	58.8	100
Wrestling	-	8	44	27	79	-	10.1	55.7	34.1	100
Totals	18	155	437	553	1163	1.5	13.3	37.5	47.5	100

$$\chi^2 = 23.4 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XXIV presents the compiled data pertaining to the recommendations made about ice cream as answered by the coaches of the five different sports. Although ice cream was noted to have a correlation coefficient of .45 in a test of reliability, the results are very much worth being

reviewed. Analysis of the chi square sources revealed that better than a third of the value came from the wrestling coaches. More of their responses than expected were found in the "seldom" category and less in the "athlete's choice" section. Therefore, the conclusion was that wrestling coaches question use of ice cream. This group of coaches preferred to restrict ice cream intake to only a few times a week.

TABLE XXXIV
RECOMMENDATIONS FOR ICE CREAM
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	7	93	89	209	398	1.7	23.3	22.3	52.5	100
Track	8	91	55	152	306	2.6	29.7	17.9	49.6	100
Football	6	87	84	174	351	1.7	24.7	23.9	49.5	100
Swimming	-	9	4	19	32	-	28.1	12.5	59.3	100
Wrestling	6	33	16	24	79	7.5	41.7	20.2	30.3	100
Totals	27	313	248	578	1166	2.3	26.8	21.2	49.5	100

$$\chi^2 = 32.7 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table XXXV is presented the compiled data pertaining to the recommendations made for milk by the coaches of five different activities. To obtain a corrected chi square value, it was necessary to combine the "never" and "seldom" columns. Study of the data revealed track coaches to be more restrictive about milk consumption than their cohorts. This fact

was indicated by the large portion of the total chi square coming from the combined "never" "seldom" column. The number of restrictive answers, as compared to what was estimated, yielded about half of the total figure. Just why the track coaches responded in such a manner is beyond the scope of this study. One interesting note was that the wrestling coaches recommended "often" for milk as opposed to their practice of limiting ice cream consumption.

TABLE XXXV
RECOMMENDATIONS FOR MILK ACCORDING
TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	3	19	226	151	399	.7	4.7	56.6	37.8	100
Track	7	28	158	116	309	2.2	9.0	51.1	37.5	100
Football	2	17	208	127	354	.5	4.8	58.7	35.8	100
Swimming	-	2	18	14	34	-	5.8	52.9	41.1	100
Wrestling	1	8	44	26	79	1.2	10.1	55.7	32.9	100
Totals	13	74	654	434	1175	1.1	6.3	55.6	36.9	100

$$\chi^2 = 15.6 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XXXVI presents the tabulated data involving the responses according to sport coached for milk shakes ($r = .45$). In this instance, the wrestling coaches have answered with more severe restriction than they did for milk. The large percentage of responses in the "never" category made this

quite clear and were responsible for almost half of the entire chi square. The writer is inclined to believe that this coaching group feels that this restriction enables them to control the wrestlers' weight to some degree.

TABLE XXXVI
RECOMMENDATIONS FOR MILK SHAKES
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	12	132	61	188	393	3.0	33.5	15.5	47.0	100
Track	25	112	33	134	304	8.2	36.8	10.8	44.0	100
Football	21	132	50	147	350	6.0	37.7	14.2	42.0	100
Swimming	6	7	2	19	34	17.6	20.5	5.8	55.8	100
Wrestling	19	35	7	17	78	24.3	44.8	8.9	21.7	100
Totals	83	418	153	505	1159	7.1	36.0	13.2	43.5	100

$$\chi^2 = 69.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Compiled data concerned with the answers to the pastries question by coaches of various sports is shown by Table XXXVII. The total percentage figures clearly indicated a contra-indication of pastry intake. Once again the wrestling coaches were foremost in expressing this opinion. A larger "never" response than expected was the source of approximately one-half of the entire chi square value. Fewer basketball coaches answered "never," which accounted for another tenth of chi square. Although the majority of coaches, led by the wrestling

mentors, restricted pastries, the basketball coaches were not quite as strict.

TABLE XXXVII
RECOMMENDATIONS FOR PASTRIES
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	4	Total	
Basketball	61	211	3	122	398	15.2	53.0	1.0	30.6	100
Track	69	142	5	89	305	22.6	46.5	1.6	29.1	100
Football	66	195	4	85	350	18.8	55.7	1.1	24.2	100
Swimming	11	9	-	14	34	32.2	26.4	-	41.1	100
Wrestling	39	29	1	7	76	51.3	38.1	1.3	9.2	100
Totals	246	586	14	317	1163	21.1	50.3	1.2	27.2	100

$$\chi^2 = 65.4 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Phosphates were one of the items to which a significant number of coaches did not indicate an answer. Table XXXVIII shows the tabulation of all the phosphates answers as given by the five different sports coaches. Although many coaches did not answer this question, one group of coaches did vary from the general non-committal response of the whole. More wrestling coaches said to never eat phosphates than was expected. The difference was large enough to account for about one-seventh of the computed chi square. The laissez-faire attitude of the coaches in general was not reflected in the wrestling group.

TABLE XXXVIII
RECOMMENDATIONS FOR PHOSPHATES
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent						
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
Basketball	45	45	111	32	177	410	10.9	10.9	27.1	7.8	43.1	100
Track	35	42	78	31	130	316	11.0	13.2	24.6	9.8	41.1	100
Football	33	54	102	31	139	359	9.1	15.0	28.4	8.6	38.7	100
Swimming	4	10	3	1	19	37	10.8	27.0	8.1	2.7	51.3	100
Wrestling	11	20	19	6	24	80	13.7	25.0	23.7	7.5	30.0	100
Totals	128	171	313	101	489	1202	10.6	14.2	14.2	8.4	40.6	100

$\chi^2 = 28.3$ $P = .05$

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

Table XXXIX presents the compiled data concerning the dietary recommendations made by the coaches of five sports in regards to potatoes. Although most of the nation's coaches saw no reason to place much restriction on potato consumption, those who coach wrestling did. Better than half of the entire chi square resulted from this group when the percentage of "seldom" answers was unusually large.

TABLE XXXIX
RECOMMENDATIONS FOR POTATOES
ACCORDING TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	*1	2	3	4	Total	1	2	3	4	Total
Basketball	-	64	142	185	391	-	16.3	36.3	47.3	100
Track	5	49	98	154	306	1.6	16.0	32.0	50.3	100
Football	1	53	152	144	350	.2	15.1	43.4	41.1	100
Swimming	1	8	8	16	33	3.0	24.2	24.2	48.4	100
Wrestling	3	3	14	25	75	4.0	44.0	18.6	33.3	100
Totals	10	207	414	524	1155	.8	17.9	35.8	43.3	100

$$\chi^2 = 60.2 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table XL is presented the compilation of recommendations made by coaches of five sports in regards to carbonated beverage consumption. Carbonated beverages were very much in disfavor with coaches and especially with those directing wrestling teams. This latter group answered "never" in such a large proportion that they accounted for almost a third of

the entire chi square value. More coaches recommended that pop never be drunk than they did for any other item.

TABLE XL
RECOMMENDATIONS FOR POP ACCORDING
TO SPORT COACHED

Sport Coached	Distribution of N					Distribution by Per Cent				
	* 1	2	3	4	Total	1	2	3	4	Total
Basketball	110	165	12	111	398	27.6	41.4	3.0	27.8	100
Track	93	126	7	80	306	30.3	41.1	2.2	26.1	100
Football	106	157	2	88	353	30.3	44.4	.5	24.9	100
Swimming	14	7	-	13	34	41.1	20.5	-	38.2	100
Wrestling	39	25	1	14	79	49.3	31.6	1.2	17.2	100
Totals	362	480	22	306	1170	30.9	41.0	1.8	26.1	100

$$\chi^2 = 29.3 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Although the wrestling coaches made up less than ten per cent of the coaches responding, their recommended dietary practices are most interesting. Fifteen items in the list of foods were found to have significant differences in their recommended use when the sport coached was considered. The wrestling coaches response made large contributions to these chi square values in fourteen of the fifteen cases.

Men coaching high school wrestling teams placed candy, fried foods, milk shakes, pastries, phosphates, and pop in the "never to eat" category. Bread, butter, ice cream, and potatoes were to be seldom eaten, according to the same men.

Three foods were found most desirable by the wrestling mentors: gelatin, honey, and milk. Cheese was the one item that they did not either disfavor or endorse.

It is likely the wrestling coaches' response were different because of the importance of weight control in wrestling. The three receiving the "often" opinion might have been named for various reasons.

Football coaches were the ones who seemed to have followed the average dietary recommendation. For no food were their comments at much variance with the group in general. Basketball coaches did not express any great individuality either. They did seem to be a little more lenient in controlling fried food and pastry intake than their fellow coaches. A small group of them also leaned toward less consumption of beef. The number was small and therefore is perhaps not too significant.

Track coaches contra-indicated two dairy products, cheese and milk, to a greater degree than other coaches. Why they did not do the same for ice cream and milk shakes is not clear. Swimming coaches responded strongly against candy and fried foods.

Size of the community. The distribution of responses by community size is presented in Table XLI. The majority of the responses came from communities with less than a 25,000 population.

TABLE XLI
DISTRIBUTION OF RESPONDENTS
AS TO SIZE OF THE COMMUNITY

Size of Community	Number
Under 2,500	394
2,501 to 10,000	364
10,001 to 25,000	165
25,001 to 50,000	97
50,001 to 500,000	118
500,000 and over	45
No response	20
Total	1203

Table XLII presents the breakdown of the recommendations made according to this factor and shows that ten foods had significantly different recommendations. Those to be discussed in the following section are breads, eggs, fried foods, honey, fruit, phosphates, tea and wheat germ. The data are contained in Tables XII through XLIX. Minimal observations, in the sources which contributed most to the chi square values, are the reasons that beef and pastries are not reviewed.

Table XLIII presents the compiled data concerning recommendations made about breads where size of the community is the comparative factor. The nation's coaches recommended bread to their boys or permitted them to control intake of bread on their own. Coaches from the smallest communities were not prone to let the athlete choose himself but recommended or restricted bread intake. This is indicated by

TABLE XLII

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO SIZE OF COMMUNITY

Food	N	X ²	Prob.	PERCENT OF RESPONSE BY ANSWER																													
				Under 2,500								2,501-10,000				10,001-25,000				25,001-50,000				50,000-500,000				Over 500,000					
				#0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
Beans	1139	9.7	.90	-	1	9	6	17	-	1	8	5	17	-	3	3	9	5	8	-	4	3	2	2	5	-	1	2	-	-	-	-	-
Beef	1157	20.2	.05	-	-	2	20	11	-	-	2	19	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bread	1147	24.6	.01	-	-	5	15	13	-	-	4	11	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butter	1134	17.9	.90	-	1	6	13	14	-	-	6	11	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cabbage	1132	22.9	.10	-	2	9	6	16	-	-	1	9	6	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Candy	1144	20.0	.90	-	6	19	1	7	-	-	5	16	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	1182	15.1	.90	3	5	5	5	17	-	2	3	5	4	16	-	1	1	1	1	1	1	1	2	3	5	-	-	-	-	-	-	-	-
Cheese	1135	16.3	.90	-	1	10	9	14	-	-	1	7	8	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coffee	1136	6.8	.97	-	10	9	-	14	-	-	9	8	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eggs	1158	19.5	.05	-	-	2	19	12	-	-	1	17	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish	1150	11.7	.95	-	-	6	10	17	-	-	4	9	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fowl	1141	11.8	.95	-	1	6	10	18	-	-	5	8	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fried Foods	1149	28.7	.05	-	6	18	1	9	-	-	6	15	1	9	-	3	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fruit	1149	12.5	.05	-	-	-	24	9	-	-	-	1	20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fruit Juice	1155	8.7	.95	-	-	-	24	9	-	-	-	1	20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gelatin	1128	21.3	.90	-	1	4	12	16	-	-	-	4	10	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Honey	1144	28.9	.05	-	1	5	12	16	-	-	-	4	10	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ice Cream	1148	24.2	.10	-	1	9	7	15	-	-	-	9	6	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milk	1156	14.2	.90	-	-	3	19	11	-	-	-	2	17	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milk Shakes	1141	19.7	.90	-	2	12	6	14	-	-	-	12	3	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pastries	1144	24.5	.01	-	8	16	1	8	-	-	-	5	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphates	1183	62.2	.001	3	5	10	3	12	-	1	3	7	4	14	-	2	3	1	1	1	1	3	2	1	3	-	-	-	-	-	-	-	-
Pork	1145	15.7	.90	-	3	13	3	15	-	-	-	12	3	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potatoes	1137	12.2	.90	-	-	6	13	14	-	-	-	5	10	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pop	1152	16.7	.90	-	11	14	1	8	-	-	-	9	13	1	9	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tea	1138	32.4	.01	-	3	7	7	17	-	-	-	2	7	5	17	-	4	3	3	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Vitamins	1183	24.5	.90	2	2	2	11	17	-	-	2	1	9	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wheat Germ	1182	48.1	.001	2	3	3	8	18	-	1	3	5	19	-	1	1	2	3	8	1	1	2	4	4	-	-	-	-	-	-	-	-	-

* 0=no response, 1=never, 2=seldom, 3=often, 4=athletes choice

smaller percentage of "athlete's choice" answers than expected, which produced about one-seventh of the entire chi square value. Another sixth of chi square came from the coaches in the 10,001--25,000 class, where fewer "often" responses than expected were received. The coaches in the third smaller towns were just not as enthusiastic about bread consumption as their fellow coaches. There were more "often" responses in the 25,001--50,000 group.

TABLE XLIII
RECOMMENDATIONS FOR BREADS ACCORDING
TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	*1	2	3	4	Total	1	2	3	4	Tot.
Under 2,500	2	62	168	153	385	.5	16.1	43.6	39.7	100
2,501 - 10,000	-	46	130	176	352	-	13.0	36.9	50.0	100
10,001 - 25,000	2	31	48	81	162	1.2	19.1	29.6	50.0	100
25,001 - 50,000	-	11	42	36	89	-	12.3	47.1	40.4	100
50,001 - 500,000	0	21	38	52	111	-	18.9	34.2	46.8	100
Over - 500,000	0	2	19	27	48	-	4.1	39.5	56.2	100
Totals	4	173	445	525	1147	.3	15.0	38.8	45.7	100

$$X^2 = 20.2 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulation of the recommendations made for eggs according to the size of the community is shown in Table XLIV. Coaches did suggest that eggs should be a very regular part of the athlete's diet, but coaches from the small communities showed some deviation. More "seldom" responses came from this

group than was expected and was the source of better than a quarter of the entire chi square. Another eighth of the chi square came from the 50,001 to 500,000 group where a higher percentage of "oftens" were realized.

TABLE XLIV
RECOMMENDATIONS FOR EGGS ACCORDING
TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	* 1	2	3	4	Tot.	1	2	3	4	Tot.
Under 2,500	1	28	219	140	388	.2	7.2	56.4	36.0	100
2,501 - 10,000	-	17	199	138	354	-	4.8	56.2	38.9	100
10,001 - 25,000	-	7	86	70	163	-	4.2	52.7	42.9	100
25,001 - 50,000	-	4	56	32	92	-	4.3	60.8	34.7	100
50,001 - 500,000	-	1	78	35	114	-	.8	68.4	30.7	100
Over -500,000	-	1	24	22	47	-	2.1	51.0	46.8	100
Totals	1	58	662	437	1158	.1	5.0	57.1	37.7	100

$$\chi^2 = 19.5 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulation of the data concerning the comments of coaches from communities of various populations about fried foods is found in Table XLV. Fried foods were found to be generally unacceptable by the nation's coaches, and coaches from the cities with 50,001 to 500,000 inhabitants were most emphatic. Their "never" responses were greater than expected, while their "athlete's choice" answers were in the opposite direction. Combined, the two totalled almost one-half of the entire chi square value. No other group was as strict

concerning fried foods, but all groups did, for the most part, limit the boys' intake.

TABLE XLV
RECOMMENDATIONS FOR FRIED FOODS
ACCORDING TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 2,500	66	203	16	101	386	17.1	52.5	4.1	26.1	100
2,501-10,000	65	172	12	107	356	18.2	48.3	3.3	30.0	100
10,001-25,000	36	77	5	44	162	22.2	47.5	3.0	27.1	100
25,001-50,000	25	40	1	21	87	28.7	45.9	1.1	24.1	100
50,001-500,000	34	62	1	15	112	30.3	55.3	.8	13.3	100
Over 500,000	10	22	-	14	46	21.7	47.8	-	30.4	100
Totals	236	576	35	302	1149	20.5	50.1	3.0	26.2	100

$$\chi^2 = 28.7 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XLVI contains the data compiled for recommendations about fruit as regards the size of the community. Although study of this table shows fruit to be a highly recommended item in the athlete's diet, one class of community showed some slight deviation. In this instance the coaches from the 10,001 to 25,000 group answered "athlete's choice" in a greater than expected number. The source may have only been responsible for one-fifth of the entire chi square, but it may be safely concluded that this group of coaches did prefer to let the boys eat or not eat fruit at their own discretion. Surprisingly enough, the significance

found concerning fruit was not reflected in the recommendations concerning fruit juice. No explanation is offered.

TABLE XLVI
RECOMMENDATIONS FOR FRUIT ACCORDING
TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 2,500	1	3	281	101	386	.2	.7	72.8	26.1	100
2,501-10,000	-	7	233	110	350	-	2.0	66.5	31.4	100
10,001-25,000	-	2	99	61	162	-	1.2	61.1	37.6	100
25,001-50,000	-	1	64	27	92	-	1.0	69.5	29.3	100
50,001-500,000	-	-	85	27	112	-	-	75.8	24.1	100
Over 500,000	-	-	30	17	47	-	-	63.8	36.1	100
Totals	1	13	792	343	1149	.09	1.1	68.9	29.8	100

$$\chi^2 = 12.5 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XLVII presents the data concerning the recommendations of the coaches, according to the size of the community, for honey. Very little limitation of this food is indicated by the group as a whole or by any single group. Coaches from cities with a population of 50,000-500,000 did answer "often" more than was expected and accounted for about one-quarter of the total chi square value. The relatively small percentage of "athlete's choice" responses from this same group further indicated a strong desire on their part to have their athletes eat honey daily. The low reliability coefficient ($r=.60$) obtained for honey indicates some uncertainty on the part of the coaches.

TABLE XLVII
RECOMMENDATIONS FOR HONEY ACCORDING
TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 2,500	6	57	140	181	384	1.5	14.8	36.4	47.1	100
2,501-10,000	7	49	117	181	354	1.9	13.8	33.0	51.1	100
10,001-25,000	-	15	68	77	160	-	9.3	42.5	48.1	100
25,001-50,000	4	14	34	36	88	4.5	15.9	38.6	40.9	100
50,001-500,000	1	13	59	38	111	.9	11.7	53.1	34.2	100
Over 500,000	-	7	15	25	47	-	14.8	31.9	53.1	100
Totals	18	155	433	538	1144	1.5	13.5	37.8	47.0	100

$$\chi^2 = 28.9 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table XLVIII is presented the compilation of recommendations made by coaches of various sized communities concerning phosphates. A large percentage of coaches did not answer this question. Two different sized communities accounted for over one-third of the entire chi square. The 2,501-10,000 classification produced better than one-sixth of the total. This was due to a smaller percentage answering "never" and a larger percentage answering "often" than expected. The remainder of the figure was contributed by the next largest classification when more "nevers" than predicted were recorded. Communities with populations of 50,001-500,000 were more restrictive concerning the content of phosphates in the athlete's diets, while more in the 2,501-10,000 category favored phosphate intake.

TABLE XLVIII
RECOMMENDATIONS FOR PHOSPHATES
ACCORDING TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Tot.	Percentage Distribution					Tot.
	*0	1	2	3	4		0	1	2	3	4	
Under 2,500	38	60	123	34	139	394	9.6	15.2	31.2	8.6	35.2	100
2,501 - 10,000	39	34	85	45	161	364	10.7	9.3	23.3	12.3	44.2	100
10,001 - 25,000	15	21	53	8	68	165	9.0	12.7	32.1	4.8	41.2	100
25,001 - 50,000	16	17	17	3	40	93	17.2	18.2	18.2	3.2	43.0	100
50,001 - 500,000	13	30	28	9	38	118	11.0	25.4	23.7	7.6	32.2	100
Over 500,000	5	9	5	1	29	49	10.2	18.3	10.2	2.0	59.1	100
Totals	126	171	311	100	475	1183	10.6	14.4	26.2	8.4	40.1	100

$\chi^2 = 62.2$ $P = .001$
*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

The data in Table XLIX not only shows coaches to be letting the boys make their own decision concerning tea, but that one group of coaches disagreed to some extent. Coaches from the smallest communities voiced sufficiently more "never" responses than expected and produced over a fourth of the total chi square value. From the largest cities, more "seldoms" than expected were observed. This observation accounted for another seventh of the chi square. For some unknown reason, the largest and smallest communities placed more restriction on the use of tea than their associates.

TABLE XLIX
RECOMMENDATIONS FOR TEA ACCORDING
TO SIZE OF COMMUNITY

Size of Community	Distribution of N					Percentage Distribution				
	* 1	2	3	4	Tot.	1	2	3	4	Tot.
Under 2,500	39	77	74	195	385	10.1	20.0	19.2	50.6	100
2,501-10,000	19	76	62	192	349	5.4	21.7	17.7	55.0	100
10,001-25,000	2	38	31	88	159	1.2	23.9	19.5	55.3	100
25,001-50,000	4	21	18	47	90	4.4	23.3	20.0	52.2	100
50,001-500,000	7	19	29	54	109	6.4	17.4	26.6	49.5	100
Over 500,000	-	17	5	24	46	-	36.9	10.8	52.1	100
Totals	71	248	219	600	1138	6.2	21.7	19.2	52.7	100

$$\chi^2 = 32.4 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table L presents the compiled data concerning recommendations made by the coaches of various sized communities

as regards the use of wheat germ by high school athletes. This supplement is one of four which had significant lack of response, but it is also one which coaches favored or answered "athlete's choice" repeatedly. Coaches from the next to largest cities failed to answer this question more times than was expected. This accounted for almost one-fifth of chi square and led to the conclusion that they had some reason for not responding. Perhaps they were uncertain, then again, they may not have wanted to express their true opinion. Another one-eighth of the entire chi square resulted from more observed than theorized answers in the "often" column from coaches living in the largest cities. They demonstrated an explicit desire for their athletes to make good use of wheat germ.

A summary of the analysis of dietary recommendations in regards to the size of the community from which the coaches came is rather interesting. Not because any pattern or strong dissimilarity is noted, but because of the lack of any particularly outstanding observation. The review of this section presents the significant recommendation differences for each of the population groups.

Coaches from the smallest communities were not inclined to give the athlete his choice concerning breads, but actually tended to favor this bakery item. Their viewpoint on eggs and tea was quite different from that generally denoted. They restricted eggs more often and were even more restrictive about tea drinking.

TABLE L

RECOMMENDATIONS FOR WHEAT GERM
ACCORDING TO SIZE OF COMMUNITY

Size of Community	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
Under 2,500	25	34	32	89	214	394	6.3	8.6	8.1	22.5	54.3	100
2,501 - 10,000	27	15	35	64	223	364	7.4	4.1	9.6	17.5	61.2	100
10,001 - 25,000	11	8	19	32	94	164	6.7	4.8	11.5	19.5	57.3	100
25,001 - 50,000	11	6	5	23	48	93	11.8	6.4	5.3	24.7	51.6	100
50,001 - 500,000	19	9	8	33	49	118	16.1	7.6	6.7	27.9	41.5	100
Over 500,000	2	1	1	19	26	49	4.0	2.0	2.0	38.7	53.0	100
Totals	95	73	100	260	654	1182	8.0	6.1	8.4	22.0	55.3	100

 $\chi^2 = 48.1$ $P = .001$

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

Phosphates received scattered comments from the coaches, but one group of them did center their answer in one category. Those from the next smallest communities (2,501-10,000) recommended phosphates be eaten daily and also answered "never" less often than their fellow coaches.

Two foods received somewhat different answers from the individuals coaching in areas with a population of 10,001 to 25,000. According to these coaches, fruit consumption was better left to the boys' own discretion. Bread was to be eaten less often than the majority of the coaches indicated. This viewpoint was in direct opposition with the recommendations made for bread by coaches in the 25,001-50,000 category. It was their conviction that bread should be eaten more often.

Although no apparent pattern was noted in the analysis by population, the coaches in the second largest cities (50,001-500,000) did vary with their cohorts more than any other group. Differences included eggs, fried foods, honey, phosphates and wheat germ. In the case of eggs and honey, they were most enthusiastic in suggesting that these two items be eaten daily. Fried foods and phosphates reflected a strong opposition to their even being included in the diet at all. This group was most hesitant to answer the question about wheat germ. They are either uninformed, or do not wish to reveal their position.

Coaches from the largest cities were not quite so reticent to state their opinion on wheat germ. These mentors were decidedly in favor of recommending this dietary supplement. Their position on tea was also more negative than the other coaches.

Type of community. Table LI presents the distribution of response by type of community. The final classification of "other and/or no response" was inserted for several reasons. First, failure to answer the question; and second, the descriptions given by a number of coaches would have made necessary too many additional classifications. This category was completely dropped from the chi square statistical analysis.

TABLE LI

DISTRIBUTION OF RESPONSE
AS TO TYPE OF COMMUNITY

Type of Community	Number
Urban	219
Suburban-residential	242
Suburban-industrial	105
Rural	233
Rural-farm	305
Other or no response	99
Total	1203

Table LII indicates that when the recommendations were analyzed according to type of community, that twelve items had some significant deviation in the pattern of response. Lack of observations within the sources contributing the major portion of the chi square value made it impractical to discuss fish, pastries, pork and wheat germ. Data pertaining to breads, candy, fowl, fried foods, gelatin, ice cream, phosphates and carbonated beverages are contained in Tables LIII through LXI.

Table LIII contains the bread data related to the recommendations made by coaches according to the type of community involved. The evidence indicated bread to be a recognized staple in the athlete's diet for which most coaches preferred to permit the boy to eat as he believed he should. Two groups of coaches deviated from this practice. Rural coaches responded "athlete's choice" less often than expected, thereby accounting for one-sixth of the entire chi square value. Another sixth of the chi square resulted from the less than predicted number of "seldoms" given by urban coaches. Both of these groups actually showed a preference to recommend that the boys definitely include breads in their daily menu.

Table LIV presents the compiled data concerning the suggestions made about candy as related to the type of community in which the coach was working. The somewhat low reliability coefficient obtained for candy ($r=.75$) is still

ANALYSIS OF RECOMMENDATIONS ACCORDING TO TYPE OF COMMUNITY

* 0=no response, 1=never, 2=seldom, 3=often, 4=athletes choice

TABLE LIII
RECOMMENDATIONS FOR BREADS ACCORDING
TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	-	22	84	104	210	-	10.4	40.0	49.5	100
Sub-residential	-	33	83	119	235	-	14.0	35.3	50.6	100
Sub-industrial	2	16	36	48	102	1.9	15.6	35.2	47.0	100
Rural	-	43	98	86	227	-	18.9	43.1	37.8	100
Rural farm	2	53	119	125	299	2.0	17.7	39.8	41.8	100
Other	-	8	25	44	77	-	10.3	32.4	57.1	100
Totals	4	175	445	526	1150	.3	15.2	38.7	45.7	100

χ^2 19.8 P = .05

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LIV
RECOMMENDATIONS FOR CANDY ACCORDING
TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	32	105	9	62	208	15.3	50.4	4.3	29.8	100
Sub-residential	26	123	12	74	235	11.0	52.3	5.1	31.4	100
Sub-industrial	15	53	7	26	101	14.8	52.4	6.9	25.7	100
Rural	49	111	6	61	227	21.5	48.9	2.6	26.8	100
Rural farm	49	174	13	63	299	16.3	58.1	4.3	21.0	100
Other	8	38	10	21	77	10.3	49.3	12.9	27.2	100
Totals	179	604	57	307	1147	15.6	52.6	4.9	26.7	100

χ^2 = 32.5 P = .01

*1=never, 2=seldom, 3=often, 4=athlete's choice

high enough to accept the fact that coaches prefer boys do not eat much candy. Rural coaches were the most emphatic, as was indicated by an unexpected large percentage of "never" responses. This source accounted for one-sixth of the total chi square. Coaches from the rural farm area also showed a lesser propensity to recommend "athlete's choice" than did the other mentors. The rural response to eliminate candy completely does indicate a strong feeling about "ill effects" of candy.

The recommendations made concerning fowl by coaches from different type communities are tabulated in Table LV. Inclusion of fowl in the regular diet by the coaches is not fully accepted by the rural coaches. By answering "seldom" more often than expected, about one-eighth of the entire chi square was realized. Their recommendations reflect a practice of trying to limit fowl consumption to not more than thrice weekly.

TABLE LV
RECOMMENDATIONS FOR FOWL ACCORDING
TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	-	30	68	110	208	-	14.4	32.6	52.8	100
Sub-residential	2	28	58	148	236	.8	11.8	24.5	62.7	100
Sub-industrial	1	15	35	48	99	1.0	15.1	35.3	48.4	100
Rural	3	47	59	115	224	1.3	20.9	26.3	51.3	100
Rural farm	6	54	83	157	300	2.0	18.0	27.6	52.3	100
Other	-	4	26	47	77	-	5.1	33.1	61.0	100
Totals	12	178	329	625	1144	1.0	15.5	28.7	54.6	100

$\chi^2=32.7$ $P = .001$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulation of the fried food data as regards to type of community is shown in Table LVI. The evidence contra-indicating fried food as a part of the diet is quite definite. However, the response of the urban coaches is even more definite. The "never" response from this group was large enough to produce almost a fifth of the entire chi square. City coaches are most restrictive about the consumption of fried foods during the competitive season.

TABLE LVI
RECOMMENDATIONS FOR FRIED FOODS
ACCORDING TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	58	98	4	50	210	27.6	46.6	1.9	23.8	100
Sub-residential	40	113	8	75	236	16.9	47.8	3.3	31.7	100
Sub-industrial	23	60	3	15	101	22.7	59.4	2.9	14.8	100
Rural	52	104	7	63	226	23.0	46.0	3.1	27.8	100
Rural farm	50	164	12	74	300	16.6	54.6	4.0	24.6	100
Other	14	39	1	25	79	17.7	49.3	1.2	31.6	100
Totals	237	578	35	302	1152	20.5	50.1	3.0	26.2	100

$$\chi^2 = 26.8 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In order to properly interpret the gelatin recommendations made by coaches from various type communities, it was necessary to combine the "never" and "seldom" columns to obtain a corrected chi square value. Tabulation of these data is presented in Table LVII and shows this food to be one of

the coaches' recommended items. One-fifth of the chi square from the greater than predicted number of "often" answers by suburban-industrial coaches. The rural coaches answered "never" or "seldom" in greater than expected numbers. This was the source of a fourth of the entire chi square.

TABLE LVII
RECOMMENDATIONS FOR GELATIN ACCORDING
TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	4	19	78	103	204	1.9	9.3	38.2	50.4	100
Sub-residential	4	23	87	120	234	1.7	9.8	37.1	51.2	100
Sub-industrial	-	8	52	42	102	-	7.8	50.9	41.1	100
Rural	4	37	72	107	220	1.8	16.8	32.7	48.6	100
Rural farm	5	37	109	144	295	1.6	12.5	36.9	48.8	100
Other	-	3	31	43	77	-	3.9	40.2	55.8	100
Total	17	127	429	559	1132	1.5	11.2	37.9	49.3	100

$$\chi^2 = 22.4 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LVIII presents the recommendations made about ice cream by coaches according to the type of community. The reliability coefficient ($r=.45$) for this item has been previously discussed. Coaches have not greatly restricted this dairy product, but the diversity of answers and the low reliability coefficient may indicate some uncertainty. Nevertheless, suburban-industrial and rural coaches vary with the general pattern of response. Neither strongly

opposed or restricted ice cream, but the suburban-industrial group was more inclined to recommend "athlete's choice" and the rural group was less inclined to do so. This was reflected by the former's proportionately small "often" response and the latter's proportionately small "athlete's choice" response. Both contributed equally to about one-fifth of the entire chi square value.

TABLE LVIII
RECOMMENDATIONS FOR ICE CREAM ACCORDING
TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Urban	3	52	55	96	206	1.4	25.2	26.7	46.6	100
Sub-residential		4	62	36	136	1.6	26.0	15.1	57.1	100
Sub-industrial	1	24	25	51	101	.9	23.7	24.7	50.5	100
Rural	3	76	59	90	228	1.3	33.3	25.8	39.4	100
Rural farm	16	74	61	147	298	5.3	24.8	20.4	49.3	100
Other	-	25	10	44	79	-	31.6	12.6	55.7	100
Total	27	313	246	564	1150	2.3	27.2	21.3	49.0	100

$$\chi^2 = 42.8 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LIX shows the results of the recommendations made by coaches from different type communities as regards phosphates. Study of these data reveals an uncertainty on the part of the coaches, but it also notes two groups with individual deviations. Each of the two contribute about one-ninth to the total chi square figure. Suburban-industrial

TABLE LIX

RECOMMENDATIONS FOR PHOSPHATES
ACCORDING TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages						
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
Urban	28	35	57	8	91	219	12.7	15.9	26.0	3.6	41.5	100
Sub-residential	26	31	50	27	108	242	10.7	12.8	20.6	11.1	44.6	100
Sub-industrial	10	23	29	5	38	105	9.5	21.9	27.6	4.7	36.1	100
Rural	26	24	59	29	95	233	11.1	10.3	25.3	12.4	40.7	100
Rural farm	27	48	97	26	107	305	8.8	15.7	31.8	8.5	35.0	100
Other	7	10	21	5	36	79	8.8	12.6	26.5	6.3	45.5	100
Total	124	171	313	100	475	1183	10.4	14.4	26.4	8.4	40.1	100

 $\chi^2 = 35.8$ P = .05

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LX

RECOMMENDATIONS FOR CARBONATED BEVERAGES
ACCORDING TO TYPE OF COMMUNITY

Type of Community	Distribution of N					Community Percentages				
	*1	2	3	4	Total	1	2	3	4	Total
Urban	71	89	2	50	212	33.4	41.9	.9	23.5	100
Sub-residential	60	91	4	80	235	25.5	38.7	1.7	34.0	100
Sub-industrial	39	42	1	21	103	37.8	40.7	.9	20.3	100
Rural	60	92	4	71	227	26.4	40.5	1.7	31.2	100
Rural farm	105	131	9	56	301	34.8	43.5	2.9	18.6	100
Other	26	30	2	18	76	34.2	39.4	2.6	23.6	100
Total	361	475	22	296	1154	31.2	41.1	1.9	25.6	100

 $\chi^2 = 21.4$ P = .05

*1=never, 2=seldom, 3=often, 4=athlete's choice

coaches were more restrictive about phosphate consumption. This is shown by the unexpected percentage of "never" answers. The practice of recommending daily consumption of phosphates is noted for the rural coaches. Their "often" recommendations numbered more than had been predicted. While the industrial suburbanites feel a need to restrict phosphate intake, the rural coaches express a need for phosphates in the athlete's diet.

Table LX presents the compiled data regarding carbonated beverage recommendations as given by coaches from various type communities. Two groups deviated from the general recommended practices and together are responsible for half of the entire chi square. The suburban-residential coaches gave more "athlete's choice" answers, but the rural farm coaches did the exact opposite. Nevertheless, both groups were in general accord with all coaches to maintain restrictions on the use of soda pop by the athletes.

Rural coaches contributed the most to chi square value in seven of the eight foods discussed insofar as the recommendations of coaches from different communities were concerned. This group restricted candy, fowl, and gelatin consumption more severely than others did. Instead of recommending daily intake of breads, they preferred to limit it somewhat or let the athlete control his bread consumption. Ice cream and pop were not well received by most coaches, and the rural coaches gave even less "athlete's choice" than

their cohorts did. Phosphates were another matter altogether. The rural group was more inclined to recommend phosphates as a regular supplement to the athlete's diet.

Coaches from the urban communities were the most emphatic of all groups in stating that fried foods should be excluded from the diet. On the other hand they were not as restrictive concerning bread consumption.

Suburban-residential coaches differed from the general restriction of carbonated beverages by suggesting that this decision be left up to the athlete.

Three items received recommendations from the suburban-industrial mentors that varied with the general practices. This group of coaches preferred that gelatin be eaten quite regularly and that phosphates be eliminated as much as possible. They seemed to think that one supplement is beneficial while the other is not, or is harmful. This group was inclined to let ice cream be a matter of the athlete's choice.

Two classifications of communities, the rural and the "other" group, illustrated no important variations concerning the current practices of high school coaches in recommending diets to athletes.

Enrollment of the high school. The 1,203 returns, as far as enrollment was concerned, were divided into five classifications. The distribution is shown in Table XLI.

TABLE LXI
DISTRIBUTION OF RESPONSE AS TO
ENROLLMENT OF HIGH SCHOOL

Enrollment	Number
Less than 200	251
200 - 499	360
500 - 999	302
1000 - 2500	243
Over 2500	27
No response	20
Total	1203

When the analysis of the dietary recommendations according to the school enrollment was completed, thirteen foods were found to have significant differences. Tables LXII through LXXII present the compiled data for breads, candy, fried foods, honey, pastries, phosphates, pork, carbonated beverages, tea, and wheat germ. There was an insufficient number of observations within the cells contributing the major portion of the chi square values in the beef, gelatin and ice cream analysis. In these cases no logical method of combining responses could be devised. For this reason these foods have been dropped from this section.

Table LXIII presents the compiled data pertaining to the recommendations made for breads according to the enrollment of the high school. Most coaches recommended that breads be a regular part of the diet, but two groups of coaches differed in two different respects. Those in the

TABLE LXII

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO ENROLLMENT OF THE HIGH SCHOOL

Food	N	X ²	Prob.	PERCENT OF RESPONSE BY ANSWER															
				Under 200				200-499				500-999				1,000-2,500			
				#0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	Over 2,500
Beans	1140	18.5	.90	-	1	6	3	11	-	1	7	6	17	-	1	7	5	12	-
Beef	1158	16.6	.05	-	-	2	12	7	-	-	1	17	8	-	-	1	13	7	-
Bread	1148	21.9	.01	-	-	4	9	8	-	-	4	10	11	-	-	4	6	10	-
Butter	1134	8.8	.90	-	1	4	9	9	-	-	5	9	11	-	-	4	6	10	-
Cabbage	1133	14.6	.90	-	2	5	5	10	-	1	7	6	11	-	-	5	4	11	-
Candy	1145	33.1	.001	-	4	13	1	4	-	4	14	2	6	-	3	9	1	7	-
Calcium	1183	19.8	.90	1	3	3	3	11	3	3	5	4	12	2	2	2	2	11	-
Cheese	1136	18.2	.90	-	1	6	5	9	-	1	7	7	11	-	1	4	5	10	-
Coffee	1137	13.7	.90	-	7	5	-	10	-	9	9	-	12	-	6	4	1	10	-
Eggs	1159	12.5	.90	-	-	2	12	8	-	1	17	12	-	-	-	1	11	8	-
Fish	1151	29.2	.01	-	-	5	6	10	-	-	4	9	13	-	-	3	7	10	-
Fowl	1142	13.5	.10	-	1	4	6	11	-	4	8	14	-	-	-	3	6	11	-
Fried Foods	1150	40.9	.001	-	5	10	1	6	-	4	16	2	8	-	6	9	-	5	-
Fruit	1150	5.6	.90	-	-	-	15	6	-	-	-	1	18	7	-	-	14	7	-
Fruit Juice	1156	4.4	.90	-	-	-	15	6	-	-	-	19	7	-	-	-	13	7	-
Gelatin	1129	17.5	.05	-	-	3	7	10	-	1	3	10	12	-	-	2	9	10	-
Honey	1145	18.6	.05	-	-	3	9	9	-	1	4	9	17	-	-	3	8	9	-
Ice Cream	1148	23.9	.05	-	1	7	4	9	-	-	7	7	16	-	-	5	4	11	-
Milk	1157	8.0	.90	-	-	2	12	8	-	1	2	18	11	-	-	-	1	11	9
Milk Shakes	1141	19.8	.10	-	2	8	4	9	-	1	11	4	14	-	-	2	7	3	9
Pastries	1145	29.0	.001	-	5	10	-	6	-	6	15	1	9	-	-	6	8	-	6
Phosphates	1183	54.3	.001	2	4	6	1	8	3	3	8	3	13	3	2	5	4	1	9
Pork	1145	33.8	.001	-	3	9	1	9	-	1	11	4	14	-	-	2	8	1	9
Potatoes	1137	12.1	.90	-	-	4	9	9	-	-	5	11	15	-	-	1	4	7	10
Pop	1152	23.6	.05	-	8	8	-	5	-	9	12	-	9	-	-	7	7	-	6
Tea	1138	30.3	.01	-	2	3	5	12	-	2	8	5	15	-	-	1	5	13	-
Vitamins	1183	18.3	.90	1	1	1	7	11	2	1	2	9	17	2	1	1	1	6	11
Wheat Germ	1182	31.8	.05	1	2	2	5	12	3	1	3	5	19	2	1	1	1	5	11

* 0=no response, 1=never, 2=seldom, 3=often, 4=athletes choice

200-499 sized school answered "seldom" fewer times than expected and contributed almost a fourth to the entire chi square. Coaches in the next to largest schools (1,000-2,500) answered similarly in the "often" category. This source was responsible for another sixth of the chi square. Neither group of coaches deviated greatly from the general practice of recommending breads, but both did express some difference of thought. Those in the 200-499 groups were not so prone to suggest "never," and those in the larger group were not so prone to answer "often."

TABLE LXIII
RECOMMENDATIONS FOR BREAD ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	1	42	109	94	246	.4	17.0	44.3	38.2	100
200 - 499	-	36	144	170	350	-	10.2	41.1	48.5	100
500 - 999	1	51	111	130	293	.3	17.4	37.8	44.3	100
1000 - 2500	2	41	72	118	233	.8	17.6	30.9	50.6	100
Over 2500	-	5	10	11	26	-	19.2	38.4	42.3	100
Totals	4	175	446	523	1148	.3	15.2	38.8	45.5	100

$$\chi^2 = 21.9 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LXIV shows the tabulated answers for candy as regards the size of high school in which the coaches are teaching. Although the coaches generally have indicated a

dislike of candy in the diet, one group of coaches demonstrated some tendency to differ. More coaches in the schools with an enrollment of 1000-2500 answered "athlete's choice" more than was predicted and thereby produced a sixth of the total chi square value. Although the chi square was significant there is no clear cut interpretable pattern possible from the analysis.

TABLE LXIV
RECOMMENDATIONS FOR CANDY ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	47	147	8	44	246	19.1	59.7	3.2	17.8	100
200 - 499	48	176	17	108	349	13.7	50.4	4.8	30.9	100
500 - 999	48	156	22	67	293	16.3	53.2	7.5	22.8	100
1000 - 2500	35	108	8	80	231	15.1	46.7	3.4	34.6	100
Over 2500	2	18	1	5	26	7.6	69.2	3.8	19.2	100
Totals	180	605	56	304	1145	15.7	52.8	4.8	26.5	100

$$\chi^2 = 33.1 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Fried food data, as expressed by coaches from the various sized high schools, is found in Table LXV. The contraindications expressed for fried foods were strongest in the larger schools. This support is not as strong in the schools with 200-499 students. The former group answered "never" more often, while the latter reversed the trend. Their

contributions to chi square were one-fourth and one-sixth respectively. It is clear the larger high schools had sterner restrictions.

TABLE LXV
RECOMMENDATIONS FOR FRIED FOODS ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	52	112	10	73	247	21.0	45.3	4.0	29.5	100
200 - 499	50	188	18	95	351	14.2	53.5	5.1	27.0	100
500 - 999	57	163	5	71	296	19.2	55.0	1.6	23.9	100
1000 - 2500	69	102	2	58	231	29.8	44.1	.8	25.1	100
Over 2500	8	15	-	2	25	32.0	60.0	-	8.0	100
Totals	236	580	35	299	1150	20.5	50.4	3.0	26.0	100

$$\chi^2 = 40.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table LXVI is presented the compilation of the recommendations received for honey as related to high school enrollment. The evidence shows that it is the practice of the nation's coaches to recommend "often" or "athlete's choice," with more answering the latter. The responses of the 200-499 group produced three-fifths of the chi square, with fewer responses in the "often" category and more in the "athlete's choice." The preference of permitting the boys to do as they pleased about honey is obvious. Although the reliability was low ($r=.60$) the analysis yielded significant differences and a reasonably clear pattern.

TABLE LXVI
RECOMMENDATIONS FOR HONEY ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	3	33	101	108	245	1.2	13.4	41.2	44.0	100
200 - 499	8	50	103	189	350	2.2	14.2	29.4	54.0	100
500 - 999	3	35	130	121	289	1.0	12.1	44.9	41.8	100
1000 - 2500	4	33	91	107	235	1.7	14.0	28.7	45.5	100
Over 2500	-	4	11	11	26	-	15.3	42.3	42.3	100
Totals	18	155	436	536	1145	1.5	13.5	38.0	46.8	100

$$\chi^2 = 18.6 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LXVII presents the compiled data pertaining to the recommendations made for pastries according to the number of students in the high school. The disfavor with which they are regarded is reflected strongly by the schools in the 500-999 and the 1000-2500 brackets. Almost two-thirds of the entire chi square value comes from the "never" and "seldom" response categories of these two groups. The 500-999 group shows a greater number of "seldom" answers and the 1000-2500 group has a larger percentage of "never" answers.

Table LXVIII shows the tabulated answers for phosphates in regards to the enrollment of the high schools. From the 1000-2500 sized schools came slightly less than a third of the chi square. This was caused by a proportionately large number of "never" responses and a proportionately small number

TABLE LXVII
RECOMMENDATIONS FOR PASTRIES ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	59	120	4	63	246	23.9	48.7	1.6	25.6	100
200 - 499	63	173	8	102	346	18.2	50.0	2.3	29.4	100
500 - 999	50	179	-	66	295	16.9	60.6	-	22.3	100
1000 - 2500	67	95	2	69	233	28.7	40.7	.8	29.6	100
Over 2500	6	15	-	4	25	24.0	60.0	-	16.0	100
Totals	245	582	14	304	1145	21.4	50.8	1.2	26.5	100

$$\chi^2 = 29.0 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

of "seldom" answers. Coaches from the 200-499 bracket responded less often in the "never" bracket than expected and accounted for another ninth of the chi square figure. The coaches in the next to largest sized schools were not in favor of their boys using phosphates, and those from the 200-499 group expressed the same opinion to a lesser degree. The larger percentage of "no response" answers from the largest schools was offset by the few cases actually involved. Whether a larger sample of coaches from these schools would maintain the trend is a moot question.

Data expressing the recommendations of the coaches from schools with various student populations in Tablx LXIX is concerned with pork as a part of the athlete's diet. The majority of the coaches in the nation divided their comments

TABLE LXVIII

RECOMMENDATIONS FOR PHOSPHATES ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages						
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
Under 200	24	44	76	15	92	251	9.5	17.5	30.2	5.9	36.6	100
200-499	36	35	95	40	154	360	10.0	9.7	26.3	11.1	42.7	100
500-999	36	31	90	34	111	302	11.9	10.2	29.8	11.2	36.7	100
1000-2500	26	54	46	11	106	243	10.7	22.2	18.9	4.5	43.6	100
Over 2500	5	8	4	--	10	27	18.5	29.6	14.8	-	37.0	100
Total	127	172	311	100	473	1183	10.7	14.5	26.2	8.4	39.9	100

 $\chi^2 = 54.3$ P = .001

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

between "seldom" and "athlete's choice." However, two groups of coaches returned answers to this question which were quite different from that of the entire group. More coaches in the smallest schools answered "never" than had been surmised and the next larger classification followed the same pattern for the "often" category. These sources were respectively responsible for a fifth and a third of the entire chi square value. The coaches in the smallest high schools were more prone to restrict pork consumption, while those in the next size classification showed a preference for pork. This writer was slightly surprised by this result. A variation between smallest and largest pupil enrollments would have seemed more likely.

TABLE LXIX
RECOMMENDATIONS FOR PORK ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	31	98	13	105	247	12.5	39.6	5.2	42.5	100
200 - 499	16	125	47	160	348	4.6	35.9	13.5	45.9	100
500 - 999	22	137	19	112	290	7.5	47.2	6.5	38.6	100
1000 - 2500	20	95	17	103	235	8.5	40.4	7.2	43.8	100
Over 2500	2	11	2	10	25	8.0	44.0	8.0	40.0	100
Totals	91	466	98	490	1145	7.9	40.7	8.5	42.7	100

$$\chi^2 = 33.8 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table LXX is presented the compilation of the answers given by coaches from all sized high schools for carbonated beverages. "Pop" was poorly regarded by the coaches. The small school coaches restricted it from the athlete's diet most strongly. The percentage of this group answering "never" numbered more than enough to account for approximately one-eighth of the chi square. No other classification was as certain about curtailing the intake of soda pop. One group (500-999), showed a preference for recommending "seldom." A third of the chi square total came from this source. Coaches from the high schools with 500-999 students were less restrictive.

TABLE LXX

RECOMMENDATIONS FOR CARBONATED BEVERAGES
ACCORDING TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	92	93	5	57	247	37.2	37.6	2.0	23.0	100
200 - 499	105	142	5	98	350	30.0	40.5	1.4	28.0	100
500 - 999	78	148	8	62	296	26.3	50.0	2.7	20.9	100
1000 - 2500	81	82	3	68	234	34.6	35.0	1.2	29.0	100
Over 2500	5	11	1	8	25	20.0	44.0	4.0	32.0	100
Totals	361	476	22	293	1152	31.3	41.3	1.9	25.4	100

$$\chi^2 = 23.6 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LXXI presents the compiled data concerning the recommendations made for tea as were given by coaches according to the enrollment of the school. Tea was well accepted by the coaches as is indicated by the number of responses in the "often" and "athlete's choice" columns. There was a dissenting note only from the smallest high schools. These coaches replied "never" more often and "seldom" less often. Accordingly, they were the source of better than a third of the calculated chi square value. Their attitude indicates more negative opinion than the group as a whole. However, the coaches in the small high schools were generally agreeable to the inclusion of tea in the high school athlete's diet.

TABLE LXXI
RECOMMENDATIONS FOR TEA ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Under 200	25	35	55	131	246	10.1	14.2	22.3	53.2	100
200 - 499	25	93	55	176	349	7.1	26.6	15.7	50.4	100
500 - 999	12	67	57	150	286	4.2	23.4	19.9	52.4	100
1000 - 2500	6	52	45	130	233	2.5	22.3	19.3	55.7	100
Over 2500	2	5	7	10	24	8.3	20.8	29.1	41.6	100
Totals	70	252	219	597	1138	6.1	22.1	19.2	52.4	100

$\chi^2 = 30.3$ $P = .01$
 * 1=never, 2=seldom, 3=often, 4=athlete's choice

Tabulated wheat germ figures, in the terms of high school enrollment, are presented in Table LXXII. Coaches have indicated, that for the most part, little restriction is placed on the use of wheat germ. However, the number failing to answer this question was significant. Coaches from the two smallest sized high school groups also indicated trends away from that generally practiced. The observed number of "nevers" in the under 200 classification was not as great as expected. Coaches in the next larger schools answered "often" in just the opposite manner. Each source produced about one-fifth of the entire chi square value. Although the former group indicated a propensity to disallow wheat germ consumption, the greater number of them also thought it to be a worthwhile supplement.

Recommendations from the schools with the smallest enrollments varied with the general pattern in the case of five items. A preference was noted for responding never for pork, carbonated beverages, and tea. Of these, only tea was recommended by the majority; the other two were on the coaches restricted list. Coaches from the small high schools did not restrict wheat germ as much as other coaches, nor did they allow as much freedom in the case of candy.

Coaches located in high schools with 200 to 499 students showed more leniency in dealing with foods, whether the general practice was in a positive or negative direction. For instance, they did not recommend "never" for fried foods

TABLE LXXII

RECOMMENDATIONS FOR WHEAT GERM ACCORDING
TO HIGH SCHOOL ENROLLMENT

High School Enrollment	Distribution of N					School Percentages						
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
Under 200	11	25	19	55	141	251	4.3	9.9	7.5	21.9	56.1	100
200-499	31	16	34	58	221	360	8.6	4.4	9.4	16.1	61.3	100
500-999	28	17	29	80	147	301	9.3	5.6	9.6	26.5	48.8	100
1000-2500	23	13	14	61	132	243	9.4	5.3	5.7	25.1	54.3	100
Over 2500	2	2	3	7	13	27	7.4	7.4	11.1	25.9	48.1	100
Total	95	73	99	261	654	1182	8.0	6.1	8.3	22.0	55.3	100

 $\chi^2 = 31.8$ P = .05

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

and phosphates, nor "seldom" for bread in the same proportion as other coaches. Pork and wheat germ were more acceptable to these coaches than to their fellow coaches. Their practice concerning honey was to allow the boys to use their own discretion.

The practice of coaches in the 500-999 classification was found not to be completely opposed to pop and pastry consumption, but rather to favor restriction to several times a week.

Schools of over 2,500 numbered only twenty-seven and no differences in recommended dietary practices were found. Those in the next largest group (1,000-2,500 students) did express some differences in regard to dietary recommendations. Three foods which were not favored by most coaches had special notice from the coaches in this large class of high schools. Fried foods and pastries were placed in the never to eat category, but candy found more support in the "athlete's choice" column. This class of coaches was not as stern about candy consumption. Men coaching in the schools with an enrollment of 1,000 - 2,500 students did not place bread on the daily menu, but preferred to list it as an optional item. These coaches also indicated some preference for eliminating phosphates from their boys' diets. Other coaches were not so specific about this food supplement.

Age of the coach. Analysis of the 1203 questionnaires returned revealed that there were 398 coaches in the 20-29 age bracket; 572 in the 30-39 age group; 57 over 50 years of age; and that 31 men did not answer the question. Their patterns of response in Table LXXIII indicated significant differences in dietary recommendations for twelve foods. The compiled data for candy, calcium, fish, fowl, fried foods, ice cream, milk, milk shakes, carbonated beverages, and tea are found in Tables LXXIV through LXXXIII. Since the greatest contribution to chi square for both cabbage and vitamins were the result of too few observations, they are not discussed.

Table LXXIV shows the tabulated recommendations for calcium in relation to the age of the coach. Calcium was one of the food supplements for which a number of "no responses" were tabulated and one age group of the coaches was more guilty of this than the other three. Coaches in their forties failed to respond to this question more times than was anticipated and accordingly were responsible for over a quarter of the chi square value. The nation's coaches may have been uncertain about calcium consumption or preferred not to state their practice, but the forty-year olds were even more hesitant or more uncertain.

Table LXXV presents the data compiled about the recommendations made by the coaches for candy according to the coaches' ages. The practice of suggesting that athletes

TABLE LXXIII

ANALYSIS OF SEASON RECOMMENDATIONS
ACCORDING TO THE AGE OF THE COACH

Age of Coach			PERCENT OF RESPONSE BY ANSWER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Food	N	X ²	Prob.	20 - 29 Years					30 - 39 Years					40 - 49 Years					Over 50 Years																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Beans	1132	7.6	.90	-	1	9	6	18	-	2	12	10	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* 0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LXXIV
RECOMMENDATIONS FOR CALCIUM ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
20-29	25	53	72	42	206	398	6.2	13.3	18.0	10.5	51.7	100
30-39	46	59	86	87	294	572	8.0	10.3	15.0	15.2	51.4	100
40-49	21	22	18	23	61	145	14.4	15.1	12.4	15.8	42.0	100
Over 50	7	7	11	6	26	57	12.2	12.2	19.3	10.5	45.6	100
Total	99	141	187	158	587	1172	8.4	12.0	15.9	13.4	50.0	100

$$\chi^2 = 23.0 \quad P = .05$$

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LXXV
RECOMMENDATIONS FOR CANDY ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	83	196	19	90	388	21.3	50.5	4.9	23.2	100
30-39	72	318	28	143	561	12.8	56.6	4.9	25.4	100
40-49	19	65	8	45	137	13.8	47.4	5.8	32.8	100
Over 50	3	27	2	18	50	6.0	54.0	4.0	36.0	100
Total	177	606	57	296	1136	15.5	53.3	5.0	26.0	100

$$\chi^2 = 22.9 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

seldom eat candy is quite prevalent. One age group was noted to have responded "never" in a percentage larger than expected, contributing over one-third of the entire chi square value. The coaches recommending this rather severe restriction were the youngest coaches. To a number of them, "never eat" was preferable to saying "seldom eat" candy.

According to the fish data shown in Table LXXVI, the youngest coaches tended to permit the high school athletes to decide about fish. However, enough of this group deviated from the general pattern to account for over a fifth of the total chi square figure. The percentage answering "often" was not as great as expected. The forty-year olds also

TABLE LXXVI
RECOMMENDATIONS FOR FISH ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	5	72	102	209	388	1.2	18.5	26.2	53.8	100
30-39	1	76	196	287	560	.2	13.5	35.0	51.2	100
40-49	1	27	50	62	140	.7	19.2	35.7	44.2	100
Over 50	1	3	19	31	54	1.8	5.5	35.1	57.4	100
Total	8	178	367	589	1142	.7	15.5	32.1	51.5	100

$$\chi^2 = 15.1 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

leaned toward some restriction and a little less freedom on the boys' part.

Table LXXVII reflects the same pattern of recommendations for fowl as was noted for fish in Table LXXVI. In the matter of fowl, unexpected numbers of "seldom" answers and a smaller number of "often" responses from the twenty-year olds accounted for over a third of the entire chi square value. Since much chicken is fried, the youngest coaches may have felt a restriction on fowl intake was desirable. Coaches in their forties also also indicated a somewhat more lenient pattern than was noted for the other age groups.

TABLE LXXVII
RECOMMENDATIONS FOR FOWL ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	7	80	84	215	386	1.8	20.7	21.7	55.7	100
30-39	4	76	174	303	557	.7	13.6	31.2	54.4	100
40-49	-	21	52	64	137	-	15.3	37.9	46.7	100
Over 50	1	1	18	33	53	1.8	1.8	33.9	62.2	100
Total	12	178	328	615	1133	1.0	15.7	28.9	54.2	100

$$\chi^2 = 33.0 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

It has already been noted several times, that fried foods are in considerable disfavor with the majority of high school coaches. Table LXXVIII presents the compiled recommendations made by the coaches of all ages in regards to this food classification. Coaches in the two older brackets

both responded negatively to this question more often than was expected. In doing so, the forty-year olds were responsible for about a third of chi square and the coaches over fifty for another seventh. Therefore, the conclusion is that older coaches are more restrictive than younger coaches when fried foods are under consideration.

TABLE LXXVIII
RECOMMENDATIONS FOR FRIED FOODS ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	74	209	17	89	389	10.9	53.7	4.3	22.8	100
30-39	103	289	16	153	561	18.3	51.5	2.8	27.2	100
40-49	42	62	1	34	139	30.2	44.6	.7	24.4	100
Over 50	16	20	1	15	52	30.7	38.4	1.9	28.8	100
Total	235	580	35	291	1141	20.6	50.8	3.0	25.5	100

$$\chi^2 = 20.9 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LXXIX presents the compiled data concerning the recommended use of ice cream by high school athletes. The comparison of the remarks made by coaches of different ages indicated that the youngest coaches limit the intake of ice cream more than the older coaches. Several observations support this conclusion: more of the youngest coaches answered "never" or "seldom" than was expected, and less of

them replied "often" than was expected. Together, these sources total over one-half of the entire chi square.

TABLE LXXIX
RECOMMENDATIONS FOR ICE CREAM ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	19	116	69	183	387	4.9	29.9	17.8	47.2	100
30-39	6	146	127	281	560	1.0	26.0	22.6	50.0	100
40-49	-	39	37	62	138	-	28.2	26.8	44.9	100
Over 50	2	10	14	28	54	3.7	18.5	25.9	51.8	100
Total	27	311	247	554	1139	2.3	27.3	21.6	48.6	100

$$X^2 = 27.0 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In order to properly interpret the milk data contained in Table LXXX, it was necessary to combine the "never" and "seldom" columns and obtain a corrected chi square total. The current practice in regards to milk is to recommend it for daily use or to allow the athlete to control his own intake. The large number of "oftens" received from the coaches in their forties was the cause of about an eighth of chi square. Another fifth came from the oldest coaches, who returned an unexpected number of "athlete's choice" answers. In other words, the oldest coaches left the decision up to the boys. The next oldest coaches actually recommended that their boys drink lots of milk. Neither of these two group

made as many negative recommendations as the coaches under forty.

TABLE LXXX
RECOMMENDATIONS FOR MILK ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	5	25	230	132	392	1.2	6.3	58.6	33.6	100
30-39	7	44	305	209	565	1.2	7.7	53.9	36.9	100
40-49	-	4	91	43	138	-	2.9	65.9	31.1	100
Over 50	1	1	24	27	53	1.8	1.8	45.2	50.9	100
Total	13	74	650	411	1133	1.1	6.4	56.6	35.8	100

$$\chi^2 = 16.1 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table LXXXI presents the data collected concerning the recommendations made about milk shakes as related to the age of the coach. Although milk shakes were restricted to some extent, the thirty-year olds did not follow the general pattern shown by the majority of the coaches. This was illustrated by fewer "never" responses from this age group than was expected. The disparity accounted for close to a quarter of the entire chi square. Their reaction indicates some preference to allowing more freedom in the matter than expressed by their fellow coaches. The older coaches were even more inclined to make this decision the athlete's choice.

TABLE LXXXI
RECOMMENDATIONS FOR MILK SHAKES ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	37	148	41	163	389	9.5	38.0	10.5	41.9	100
30-39	28	201	84	244	557	5.0	36.0	15.0	43.8	100
40-49	13	52	23	48	136	9.5	38.2	16.9	35.2	100
Over 50	5	15	5	26	51	9.8	29.4	9.8	50.9	100
Total	83	416	153	481	1133	7.3	36.7	13.5	42.4	100

$$\chi^2 = 17.0 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Carbonated beverage recommendations as related to the age of the coach are tabulated in Table LXXXII. The figures show that the oldest group of coaches did not attempt to control "pop" consumption as closely as the rest, but they also indicate that the youngest group practiced more strict regulation. The youngest coaches' response to the "never" option was greater than expected and provided nearly an eighth of the chi square. A relatively small number of "seldoms" from the 40-49 year olds accounted for over another sixth of chi square. The young coaches were expressing dissatisfaction with regular consumption of carbonated beverages and therefore indicated their restrictive practices. On the other hand, the coaches in their forties indicated a little more leniency.

TABLE LXXXII
RECOMMENDATIONS FOR CARBONATED BEVERAGES
ACCORDING TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	141	157	8	83	389	36.2	40.3	2.0	21.3	100
30-39	161	250	11	141	563	28.6	44.1	1.9	25.0	100
40-49	50	43	2	44	139	35.9	30.9	1.4	31.6	100
Over 50	8	26	1	17	52	15.3	50.0	1.9	32.6	100
Total	360	476	22	285	1143	31.5	41.6	1.9	24.9	100

$$\chi^2 = 21.4 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

According to the tea data presented in Table LXXXIII, the oldest and youngest coaches have some differences with each other and with other coaches in general. Those in their twenties were not so prone to limit tea consumption. This is supported by their low "seldom" response to the question, wherein over one-ninth of the chi square value originated. The coaches over fifty reflected a somewhat different attitude. More of them than expected indicated "seldom" as their recommendation, thereby accounting for a quarter of the chi square. This is not to say that the oldest coaches disliked the use of tea. The majority of them were inclined to go along with the athlete's preference.

TABLE LXXXIII
RECOMMENDATIONS FOR TEA ACCORDING
TO THE AGE OF THE COACH

Age of the Coach	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
20-29	27	70	83	206	386	6.9	18.1	21.5	53.3	100
30-39	37	122	102	292	553	6.6	22.0	18.4	52.8	100
40-49	5	39	29	64	137	3.6	28.4	21.1	46.7	100
Over 50	2	19	4	28	53	3.7	35.8	7.5	52.8	100
Total	71	250	218	590	1129	6.2	22.1	19.3	52.2	100

$$\chi^2 = 18.4 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Review of the section concerning the suggestions made by the coaches according to age groups does point out one interesting pattern. The youngest coaches are more restrictive than the older coaches. Candy and pop were not recommended by the coaches, but the twenty-year olds were the most opposed group. They did not recommend daily consumption of fish, fowl or ice cream, and delegated the first two to the "seldom" category. Ice cream was considered even less desirable. Only one item received better reception from the youngest coaches. It was their practice to recommend tea drinking or to permit the athlete great leeway.

Coaches in their thirties reacted most homogeneously with their class and within the entire sample. Instead of limiting milk shakes consumption as strongly as their

associates, they showed a trend toward allowing "athlete's choice."

Forty-year olds indicated different practices than those shown by the mass for six items. They responded less to the calcium question and restricted the intake of fried foods more. Surprisingly fish and fowl, which are often fried, were controlled only to a slight degree. Choice or decision by the athlete was the accepted practice. Two beverages were recommended more often by coaches in their forties than the others, milk and carbonated beverages.

The oldest coaches' responses indicated by their opinion that milk and milk shakes need not be so strongly restricted, but that athlete's choice should be allowed. They limited the intake of fried foods. Tea was not recommended by the fifty and above group but neither did they restrict it.

Number of years in coaching. Coaching experience, as expressed by the number of years in service, was distributed as shown by Table LXXXIV.

TABLE LXXXIV

DISTRIBUTION OF RESPONSE AS TO
NUMBER OF YEARS IN COACHING

Years in Coaching	Number
Less than one year	45
1 - 5 years	402
6 - 10 years	381
11 - 20 years	249
Over 20 years	94
No response	32
Total	1203

As might have been predicted, there were relatively few head coaches who were in their first year of coaching, and that as years passed, fewer individuals remained active in the coaching profession. Table LXXXV shows that eleven foods were found to have significantly different recommendations, only five of them are discussed in this section. They are butter, candy, coffee, potatoes and tea and the pertinent data are presented by Tables LXXXVI through LXXXIX. The reason for not discussing beef, cheese, fowl, fruit juice, ice cream and pork is that too few observations were counted in those sources which accounted for the largest portion of the respective accumulated chi square value.

In Table LXXXVI is presented the compilation of the butter recommendations as reflected by the number of years in coaching. The current practice is to favor butter in the athlete's diet, but coaches with less than a year of experience expressed some difference of opinion. The "never" and "seldom" columns were combined to obtain a corrected chi square. Less "athlete's choice" answers than predicted from this same group also produced another fifth of the chi square. Coaches new to the field are more restrictive concerning butter consumption than their older associates.

Table LXXXVII presents the recommendations for candy when considered from the number of years that one has been in coaching. The unexpected number of "never" responses from those with less than a year of experience resulted in one-third

TABLE LXXXIV

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO YEARS IN COACHING

Food	N	Y ²	Prob.	PERCENT OF RESPONSE BY ANSWER															
				Less than 1 year				1-5 years				6-10 years				11-20 years			
				*0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	Over 20 years
Beans	1131	13.5	.90	-	-	1	1	2	-	1	9	7	18	-	1	9	5	17	-
Beef	1148	16.1	.05	-	-	-	3	1	-	2	21	11	-	-	-	2	20	10	-
Bread	1139	10.8	.90	-	-	1	2	1	-	-	6	13	15	-	-	5	14	14	-
Butter	1125	19.8	.05	-	-	1	1	1	-	-	6	12	16	-	-	6	12	14	-
Cabbage	1124	20.8	.10	-	-	1	1	1	-	-	2	8	8	-	-	1	11	6	-
Candy	1135	40.9	.001	-	-	1	1	1	-	-	6	19	2	-	-	5	18	2	-
Calcium	1171	25.9	.10	-	1	1	1	1	2	4	5	4	18	-	2	4	6	4	-
Cheese	1127	29.6	.001	-	1	1	1	1	-	1	10	8	15	-	-	1	9	14	-
Coffee	1127	24.5	.05	-	2	1	-	1	-	9	9	1	16	-	-	9	10	1	-
Eggs	1149	9.8	.90	-	-	-	3	1	-	-	2	20	12	-	-	2	19	12	-
Fish	1141	14.3	.10	-	-	1	2	1	-	-	6	10	18	-	-	5	10	18	-
Fowl	1132	29.9	.001	-	-	1	2	1	-	-	6	9	19	-	-	5	9	18	-
Fried Foods	1140	19.8	.10	-	1	2	-	-	-	6	18	2	8	-	-	7	18	1	-
Fruit	1140	11.8	.90	-	-	-	3	1	-	-	1	25	9	-	-	-	22	10	-
Fruit Juice	1146	13.9	.01	-	-	-	3	1	-	-	-	25	9	-	-	-	22	11	-
Gelatin	1119	15.9	.90	-	-	1	2	1	-	1	4	12	17	-	-	4	13	16	-
Honey	1136	17.7	.90	-	-	1	2	1	-	1	5	13	16	-	-	1	4	13	-
Ice Cream	1138	42.6	.001	-	1	1	1	1	-	1	10	7	16	-	-	9	8	16	-
Milk	1147	12.3	.90	-	-	1	2	1	-	1	2	20	11	-	-	2	19	11	-
Milk Shakes	1132	16.6	.90	-	1	1	1	1	-	3	13	4	15	-	-	2	12	5	-
Pastries	1135	4.4	.90	-	1	2	-	-	-	8	18	1	8	-	-	7	17	-	-
Phosphates	1171	16.0	.90	-	1	1	-	1	3	4	9	3	14	-	3	5	8	3	-
Pork	1137	29.0	.01	-	1	1	1	1	-	2	14	4	15	-	-	3	14	3	-
Potatoes	1127	27.3	.001	-	-	1	1	1	-	-	7	13	15	-	-	-	6	13	-
Pop	1142	18.0	.90	-	2	2	-	-	-	11	15	1	8	-	-	11	14	1	-
Tea	1128	33.3	.001	-	-	1	1	1	-	3	6	7	19	-	-	2	8	6	-
Vitamins	1171	14.1	.90	-	-	-	2	2	2	1	2	11	18	-	2	1	2	10	-
Wheat Germ	1170	22.0	.90	-	-	1	1	2	3	2	3	7	19	-	2	2	3	7	-

* 0=no response, 1=never, 2=seldom, 3=often, 4=athletes choice

TABLE LXXXVI
RECOMMENDATIONS FOR BUTTER ACCORDING
TO YEARS IN COACHING

Years in Coaching	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Less than 1	3	15	15	10	43	6.9	34.8	34.8	23.2	100
1 - 5	4	73	135	178	390	1.0	18.7	34.6	45.6	100
6 - 10	8	68	137	158	371	2.1	18.3	36.9	42.5	100
11 - 20	-	38	81	116	235	-	16.1	34.4	49.3	100
Over 20	-	12	32	42	86	-	13.9	37.2	48.8	100
Total	15	206	400	504	1125	1.3	18.3	35.5	44.8	100

$$\chi^2 = 19.8 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LXXXVII
RECOMMENDATIONS FOR CANDY ACCORDING
TO YEARS IN COACHING

Years in Coaching	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Less than 1	16	14	2	10	42	38.1	33.3	4.7	23.8	100
1 - 5	72	211	20	89	392	18.3	53.8	5.1	22.7	100
6 - 10	55	202	23	96	376	14.6	53.7	6.1	25.5	100
11 - 20	27	137	10	63	237	11.3	57.8	4.2	26.5	100
Over 20	7	41	2	38	88	7.9	46.5	2.2	43.1	100
Total	177	605	57	296	1135	15.5	53.3	5.0	26.0	100

$$\chi^2 = 40.9 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

of the entire chi square figure. Another fourth came from the most experienced coaches. They answered "athlete's choice" more often than was expected. Therefore, the conclusion is that the coaches with less experience are very restrictive, while the most experienced ones are more lenient. Study of the percentage totals for each classification of coaching experience, indicates that as experience is acquired control of candy consumption is lessened.

Table LXXXVIII shows the tabulated recommendations for coffee as made by coaches with varying years of experience. While there is some inclination of the coaches to let the boys decide for themselves, the greater percentage restricted coffee intake. Coaches with the least experience expressed a very strong desire to completely eliminate coffee from the high school athlete's diet. Their "never" response contributed about one-third of the entire chi square where the observations were twice what was theorized. Two other groups responded in a manner which is worth noting, and each accounted for another ninth of the total chi square value. Those with 6 - 10 years experience were more inclined to recommend "seldom" and the 11 - 20 groups to restrict coffee intake.

Table LXXXIX presents the compiled data concerning the dietary recommendations for potatoes as made by coaches with various years of experience. As in the case of most of the foods discussed thus far in this section, the most recent

TABLE LXXXVIII
RECOMMENDATIONS FOR COFFEE ACCORDING
TO YEARS IN COACHING

Years in Coaching	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Less than 1	22	11	-	9	42	52.3	26.1	-	21.4	100
1 - 5	102	100	8	180	390	26.1	25.6	2.0	46.1	100
6 - 10	100	116	6	153	375	26.6	30.9	1.6	40.8	100
11 - 20	78	49	5	100	232	33.6	21.1	2.1	43.1	100
Over 20	29	22	1	36	88	32.9	25.0	1.1	40.9	100
Total	331	298	20	478	1127	29.3	26.4	1.7	42.4	100

$$\chi^2 = 24.5 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE LXXXIX
RECOMMENDATIONS FOR POTATOES ACCORDING
TO YEARS IN COACHING

Years in Coaching	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Less than 1	2	16	16	9	43	4.6	37.2	37.2	20.9	100
1 - 5	2	75	144	167	388	.5	19.3	37.1	43.0	100
6 - 10	5	66	141	158	370	1.3	17.8	38.1	42.7	100
11 - 20	-	42	80	115	237	-	17.7	33.7	48.5	100
11 - 20	1	8	28	52	89	1.1	8.9	31.4	58.4	100
Over 20	1	8	28	52	89	1.1	8.9	31.4	58.4	100
Total	10	207	409	501	1127	.9	18.3	36.2	44.4	100

$$\chi^2 = 27.3 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

entrants to the coaching field have indicated a pattern different from the overall group. Their proportionately high number of "seldom" answers led to better than a third of the entire chi square. The small number of "athlete's choice" responses further indicates that the coaches with less than a year's experience are less lenient and more restrictive about potato consumption than their associates.

Recommendations given for tea, according to the coaches' experience, are compiled in Tablx XC. For the most part, coaches are inclined to allow the athletes to control their tea consumption. Coaches with very little experience answered "often" in an unexpected percentage, thereby accounting for a third of the entire chi square. Conversely, a large number of the most experienced coaches produced an

TABLE XC
RECOMMENDATIONS FOR TEA ACCORDING
TO YEARS IN COACHING

Years in Coaching	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Less than 1	3	8	18	14	43	6.9	18.6	41.8	32.5	100
1 - 5	30	67	76	214	387	7.7	17.3	19.6	55.3	100
6 - 10	22	95	71	184	372	5.9	25.5	19.0	49.4	100
11 - 20	13	51	42	130	236	5.5	21.6	17.8	55.0	100
Over 20	2	29	11	48	90	2.2	32.2	12.2	53.3	100
Total	70	250	218	590	1128	6.2	22.1	19.3	52.3	100

$$\chi^2 = 33.3 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

eighth of the figure by answering "seldom." Coaches with one to five years in the field produced another eighth when they answered "seldom" less often. These figures indicate that a substantial segment of coaches from each bracket has a difference of opinion that is noteable. Least experienced coaches believe tea to be a good daily item in the menu, while those with twenty years in the field prefer to restrict tea intake. Mentors with one two five years in coaching are the most lenient of all.

The number of years in coaching does have an effect on the dietary recommendations made concerning eleven foods. Of these, butter, candy, coffee, potatoes, and tea were deemed worthy of discussion in this section. Coaches with more than one year experience made comments that were quite similar. Most of the differences noted were from the men in their first year of coaching.

Tea was the only item which the least experienced coaches recommended more enthusiastically than their associates did. As a rule, these men actually practiced more restrictive controls than others. Candy and coffee were held in great disfavor. Butter and potatoes were not viewed so harshly, but both were restricted more by this group of coaches than the other coaches. It was most interesting to note that although tea and coffee both contain much caffeine, tea was recommended and coffee was condemned by the new coaches.

Tea drew differing comments from the coaches with one to five and those with over twenty years of experience. The most experienced said it should be drunk seldomly, but the one - five year group made it an item of the athlete's choosing. The over twenty group, however, were more lenient about candy consumption than their cohorts.

Coaches with six to ten years experience believed coffee should not be consumed regularly, and those with eleven to twenty years in sports were even more convinced of this fact.

Preparation in physical education. Eleven-hundred-seventy-two coaches responded to the question as to what professional education they had received in the area of physical education. Of these, 822 had a major in physical education, 234 a minor in the field and only 116 had no professional courses. It was somewhat surprising that only six foods were given recommendations that were significantly different. Table XCI presents the tabulated responses for all foods, and Tables XCII through XCVI records the compiled recommendations for butter, candy, cheese, ice cream, pork, and potatoes more completely.

Table XCII presents the butter recommendations as given by coaches with varying amounts of professional preparation in the field of physical education. The general practice was to accept butter in the daily diet or as often as desired by the athlete. Those coaches with no professional

TABLE XCI

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO PREPARATION IN PHYSICAL EDUCATION

Food	N	X ²	Prob.	PERCENT OF RESPONSE BY ANSWER														
				Major				Minor				None						
				#0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
Beans	1131	9.4	.90	-	2	18	13	37	-	1	5	4	10	-	-	2	2	6
Beef	1149	1.6	.90	-	-	3	44	22	-	-	1	13	6	-	-	1	6	3
Bread	1139	6.4	.90	-	-	10	28	32	-	-	3	8	8	-	-	2	3	5
Butter	1125	17.0	.01	-	1	11	26	32	-	-	5	7	8	-	-	3	2	5
Cabbage	1124	4.2	.90	-	3	19	14	34	-	1	5	4	9	-	-	2	2	5
Candy	1136	39.1	.001	-	11	39	3	18	-	3	11	0	5	-	-	4	2	3
Calcium	1172	7.7	.90	6	8	12	9	35	2	3	3	3	10	-	1	2	2	5
Cheese	1127	13.7	.05	-	2	17	21	31	-	1	6	4	9	-	-	3	2	5
Coffee	1128	9.9	.90	-	20	19	1	31	-	7	6	-	7	-	4	2	-	4
Eggs	1150	8.9	.10	-	-	3	41	26	-	-	1	12	7	-	-	1	5	4
Fish	1142	6.9	.90	-	-	12	23	36	-	-	3	7	10	-	-	1	3	5
Fowl	1133	1.5	.97	-	1	11	21	38	-	-	3	6	11	-	-	2	2	6
Fried Foods	1141	6.5	.90	-	13	37	2	18	-	5	10	-	5	-	3	5	-	3
Fruit	1141	5.1	.90	-	-	1	49	20	-	-	-	15	5	-	-	-	6	4
Fruit Juice	1147	3.4	.90	-	-	1	49	20	-	-	-	15	5	-	-	-	7	3
Gelatin	1120	5.3	.90	-	1	8	26	35	-	1	2	8	9	-	-	1	4	5
Honey	1136	13.8	.05	-	1	9	28	32	-	-	3	7	10	-	-	2	3	5
Ice Cream	1139	15.3	.05	-	1	18	15	35	-	1	6	5	8	-	-	3	2	5
Milk	1148	12.2	.10	-	1	4	39	26	-	-	2	12	5	-	-	1	5	4
Milk Shakes	1132	7.8	.90	-	5	25	9	31	-	2	8	3	7	-	-	3	5	3
Pastries	1136	4.7	.90	-	15	36	1	18	-	5	10	-	4	-	-	5	1	5
Phosphates	1172	13.0	.90	7	10	19	5	29	3	3	3	2	7	1	2	2	1	4
Pork	1136	15.7	.05	-	5	30	7	29	-	3	8	2	8	-	1	4	-	5
Potatoes	1128	19.6	.01	-	1	11	26	32	-	-	5	8	8	-	-	3	4	3
Pop	1143	4.1	.90	-	22	29	1	18	-	7	8	-	4	-	-	4	2	5
Tea	1129	5.6	.90	-	4	16	13	37	-	2	5	5	10	-	1	2	3	5
Vitamins	1172	12.7	.90	5	3	4	22	36	2	1	1	7	10	1	-	1	3	5
Wheat Germ	1171	13.3	.10	5	5	6	16	38	2	2	2	4	11	-	-	1	1	6

*0-no response, 1-never, 2-seldom, 3-often, 4-athlete's choice

training in the field differed from those with a major or minor. They returned more "seldoms" and less "oftens" than was expected. These two sources alone accounted for almost one-half of the entire chi square value. The conclusion that coaches without a physical education background, are more restrictive concerning butter consumption is obvious. It should also be recognized that men with a major did not restrict butter intake as much as those with a minor.

TABLE XCII
RECOMMENDATIONS FOR BUTTER ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	8	126	295	360	789	1.0	15.9	37.3	45.6	100
Minor	5	51	78	89	223	2.2	22.8	34.9	39.9	100
None	2	30	28	53	113	1.7	26.5	24.7	46.9	100
Total	15	207	401	502	1125	1.3	18.4	35.6	44.6	100

$$X^2 = 17.0 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

The recommendations about candy, tabulated according to professional background in physical education, are compiled in Table XCIII. Except for the "no preparation" group, recommendations limiting candy intake were the practice. Four-fifths of the entire chi square value resulted from the "seldom" and "often" categories of the group with no

professional physical education training. The "seldom" replies were less than expected, and the "often" responses were more than expected. About 16% of this group recommended that candy be eaten often. Perhaps they advocate the sweet "quick energy" potential often thought possible of candy.

TABLE XCIII
RECOMMENDATIONS FOR CANDY ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	120	440	34	203	797	15.0	55.2	4.2	25.4	100
Minor	36	125	5	59	225	16.0	55.5	2.2	26.2	100
None	23	42	18	31	114	20.1	36.8	15.7	27.1	100
Total	179	607	57	293	1136	15.7	53.4	5.0	25.7	100

$$X^2 = 39.1 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XCIV presents the compilation of the recommendations made by coaches with various educational backgrounds in regards to cheese consumption. This is one of the several dairy products which most coaches endorse. However, less of the coaches not prepared in physical education recommended "often" than was predicted. Slightly less than one-third of the chi square figure came from this one source. Study of the table goes on to show that they prefer the athlete to choose for himself. The trend away from suggesting cheese

as a part of the daily menu is quite interesting, but not explainable within the scope of this study.

TABLE XCIV
RECOMMENDATIONS FOR CHEESE ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	22	191	231	347	791	2.7	24.1	29.2	43.8	100
Minor	11	64	49	98	222	4.9	28.8	22.0	44.1	100
None	4	32	19	59	114	3.5	28.0	16.6	51.7	100
Total	37	287	299	504	1127	3.2	25.4	26.5	44.7	100

$$\chi^2 = 15.3 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Although the reliability figure obtained for ice cream was low ($r=.45$), the tabulation of the replies of coaches with major, minor, or no preparation in physical education is presented in Table XCV. As a rule the nation's coaches either replied "often" or "athlete's choice" to this dairy food question. Differing trends were noted for the minors and no preparation groups, and each accounted for almost a fifth of the chi square value. An unexpected smaller percentage of the minors replied "athlete's choice" and thereby indicated a less firm position on ice cream control. They surprisingly showed larger percentages of coaches recommending ice cream on a seldom or often basis. In other words,

there was a divergent opinion on ice cream consumption amongst the coaches with a minor in physical education. The relatively few "often" replies from those with no college training in physical education showed that they were not so ready to accept ice cream in the every day diet. They preferred it only several times a week or trusted that the athletes would act wisely.

TABLE XCV
RECOMMENDATIONS FOR ICE CREAM ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	16	207	175	401	799	2.0	25.9	21.9	50.1	100
Minor	10	68	57	93	228	4.3	29.8	25.0	40.7	100
None	1	37	16	58	112	.8	33.0	14.2	51.7	100
Total	27	312	248	552	1139	2.3	27.3	21.7	48.4	100

$$\chi^2 = 15.3 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XCVI presents the compilation of the data concerning recommended practices of differently educated coaches in regards to pork in the high school athlete's diet. As a group the coaches are about equally divided on a "seldom" or "athlete's choice" suggestion. Coaches with a minor in physical education did answer "never" more often than expected and produced about a quarter of the accumulated chi square

figure. Their opinion that there needs to be some limitation on pork consumption was the opposite of that expressed by the non-professional group. A majority of their responses unexpectedly fell into the "athlete's choice" column. This latter source was responsible for about one-fifth of chi square. Those without a physical education background preferred to be more lenient toward pork.

TABLE XCVI
RECOMMENDATIONS FOR PORK ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	55	336	76	330	797	6.9	42.1	9.5	41.4	100
Minor	29	87	18	90	224	12.9	38.8	8.0	40.1	100
None	7	43	5	60	115	6.0	37.3	4.3	52.1	100
Total	91	466	99	480	1136	8.0	41.0	8.7	42.2	100

$$X^2 = 15.7 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table XCVII revealed that potatoes were considered to be a very acceptable part of the diet and that coaches believed the boys need little advice on this item. However, the data also indicates that the comments made by the major group did differ with that of the others. They checked the "seldom" option less often than expected, while the minors and none group reversed this pattern. Respectively, the

three contributed one-eighth, one-ninth, and one-fourth of the entire chi square. What does this mean? Simply that the majors do not restrict potato consumption as much as the other two groups do. Their suggestions are less severe.

TABLE XCVII
RECOMMENDATIONS FOR POTATOES ACCORDING
TO PHYSICAL EDUCATION TRAINING

Professional Training	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Major	6	126	295	362	789	.7	15.9	37.3	45.8	100
Minor	1	51	86	88	226	.4	22.5	38.0	38.9	100
None	3	31	30	49	113	2.6	27.4	26.5	43.3	100
Total	10	208	411	499	1128	.8	18.4	36.4	44.2	100

$$X^2 = 17.0 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

The six tables included in this section clearly show that there is an expressed difference between the current practices of coaches in recommending diets to athletes when the professional training of the coach is the comparative factor. Homogeneity of recommendations is found most often in the practices of those men who have majored in physical education. Only in the cases of potatoes and butter did they indicate any deviation from the majority. They expressed less control over both of these items and were actually more lenient with the boys than their cohorts.

Individuals with a minor in physical education also expressed some difference of opinion for two foods, ice cream and pork. Their opinion on ice cream was quite divided, but the trend was not to be as easy going about ice cream consumption. On the other hand, they were quite certain about pork consumption. Greater restriction was placed on this item by virtue of the relatively large group of returns indicating that pork should never be eaten.

As this writer expected, more differences were noted from those coaches who did not have professional training in physical education. In general they were more lenient about the restrictions placed on most of the foods in the list. Butter was the only item which these coaches restricted to a greater degree. It was also their opinion that cheese and ice cream need not be recommended often, but that the athlete choose for himself. These "non-professionals" also were more lenient concerning pork and showed a very definite inclination to have the boys eat some candy every day.

Number of sports coached. Perusal of the data indicated that 642 coaches were directing one varsity sport, 387 coached two sports, and 160 coached three activities. Fourteen answers could not be classified because of the nature of the response. When the dietary recommendations were tabulated according to the number of sports coached, shown in Table XCVIII, six foods were found to have significant variations in their recommended use. The foods presented in Table XCIX

TABLE XCVII

ANALYSIS OF RECOMMENDATIONS
ACCORDING TO NUMBER OF SPORTS COACHED

		PERCENT OF RESPONSE BY ANSWER																	
		1 Sport				2 Sports				3 Sports									
		*0	1	2	3	4	0	1	2	3	4	0	1	2	3	4			
Food	N	X ²	Prob.																
Beans	1147	5.5	.90	-	2	13	9	29	-	1	9	6	18	-	1	3	3	7	
Beef	1165	5.3	.90	-	-	3	33	18	-	-	1	21	10	-	-	1	8	4	
Bread	1155	7.2	.90	-	-	9	19	25	-	-	4	14	15	-	-	2	6	6	
Butter	1141	10.2	.90	-	1	11	18	23	-	-	5	12	16	-	-	2	6	6	
Cabbage	1140	3.3	.90	-	3	14	10	26	-	2	8	7	16	-	1	4	3	7	
Candy	1152	10.4	.90	-	9	27	3	14	-	5	17	2	9	-	-	1	9	1	
Calcium	1189	28.3	.001	6	7	8	6	27	2	4	6	5	16	1	1	2	3	7	
Cheese	1143	5.0	.90	-	1	14	14	24	-	1	8	8	15	-	1	3	4	6	
Coffee	1144	9.9	.90	-	16	14	1	22	-	10	8	-	15	-	-	3	4	6	
Eggs	1166	2.9	.90	-	-	2	31	20	-	-	2	18	13	-	-	1	8	5	
Fish	1158	2.8	.90	-	-	8	17	28	-	-	5	10	18	-	-	2	5	6	
Fowl	1149	7.7	.90	-	-	8	15	29	-	1	5	9	18	-	-	2	5	7	
Fried Foods	1157	23.8	.001	-	13	27	1	12	-	5	17	1	10	-	-	2	6	1	
Fruit	1157	3.4	.90	-	-	1	38	15	-	-	-	23	10	-	-	-	9	5	
Fruit Juice	1163	5.2	.90	-	-	1	38	15	-	-	-	22	10	-	-	-	9	5	
Gelatin	1136	6.3	.90	-	1	5	21	26	-	-	4	12	17	-	-	2	5	7	
Honey	1152	2.9	.90	-	1	8	20	24	-	1	4	12	16	-	-	2	5	7	
Ice Cream	1155	5.3	.90	-	1	15	12	25	-	1	8	6	17	-	1	3	3	7	
Milk	1164	12.1	.10	-	-	4	31	19	-	-	2	19	12	-	-	1	7	6	
Milk Shakes	1148	10.6	.10	-	4	20	7	22	-	2	11	5	15	-	1	6	1	6	
Pastries	1152	8.8	.90	-	13	27	1	13	-	6	16	-	9	-	2	7	-	4	
Phosphates	1189	44.4	.001	8	8	14	3	21	3	5	8	3	14	-	2	4	2	6	
Pork	1152	2.0	.95	-	4	21	5	23	-	3	13	3	14	-	1	6	1	6	
Potatoes	1144	9.4	.90	-	1	11	18	23	-	-	5	13	14	-	-	2	5	7	
Pork	1159	3.8	.90	-	17	22	1	13	-	10	13	1	8	-	-	4	5	4	
Tea	1145	16.5	.05	-	3	13	11	27	-	2	7	5	18	-	1	2	-	8	
Vitamins	1189	24.8	.01	5	2	3	17	27	2	2	2	10	17	-	-	-	5	8	
Wheat Germ	1188	28.7	.001	5	2	5	13	29	2	3	3	7	18	-	-	1	1	3	

* 0-no response, 1-never, 2- seldom, 3-often, 4-athlete's choice

through CIV include calcium, fried foods, phosphates, tea, vitamins, and wheat germ.

Table XCIX presents the compiled data pertaining to the recommendations made about calcium as stated by those coaching from one to three sports. Most coaches left the decision regarding calcium intake to the athletes, but a significant number of coaches did fail to respond to this item. One sport coaches were most guilty of this failure, as was indicated by the unexpected number of them doing this. This source accounted for over one-seventh of the entire chi square value. Three sport coaches answered "often" in a greater than expected percentage, which resulted in one-quarter of the chi square total. Conclusions reached concerning calcium then were: (1) more of the one sport coaches do not state their position, and (2) three sport coaches showed a greater preference to include calcium in the daily diet.

TABLE XCIX
RECOMMENDATIONS FOR CALCIUM ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
One	70	82	100	70	320	642	10.9	12.7	15.5	10.9	49.8	100
Two	24	49	67	55	192	387	6.2	12.6	17.3	14.2	49.6	100
Three	6	11	20	34	89	160	3.7	6.8	12.5	21.2	55.6	100
Total	100	142	187	159	601	1189	8.4	11.9	15.7	13.3	50.5	100

$$\chi^2 = 28.3 \quad P = .001$$

*0-no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

The data presenting the responses on the fried food question according to the number of sports coached is shown in Table C. Coaches considered this group of foods not to be desirable, and the one sport coaches were most restrictive. They showed more "never" responses than expected and reversed this trend on the "athlete's choice" option. These two sources were responsible for nearly two-fifths of the entire chi square value. Two sport coaches did not answer "never" as often, while the three sport group answered "athlete's choice" more often. Each of these sources produced a seventh of the total chi square figure. The two sport coaches were not as severe as the one sport group and the three sport group was the most lenient of the three.

TABLE C
RECOMMENDATIONS FOR FRIED FOODS ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
One	150	316	17	134	617	24.3	51.2	2.7	21.7	100
Two	61	192	10	117	380	16.0	50.5	2.6	30.7	100
Three	27	71	8	54	160	16.8	44.3	5.0	33.7	100
Total	238	579	35	305	1157	20.5	50.0	3.0	26.3	100

$$\chi^2 = 23.8 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

In Table CI is presented the compilation of recommendations made by those coaching from one to three sports in regards to the use of phosphates in a high school athlete's diet. Previous mention has already been made of the fact that a significant number of coaches did not answer this question. One sport coaches failed to answer this question most often and they also replied "often" less frequently. Almost one-third of the total chi square figure was derived from these two sources. Three sport coaches differed with this view most emphatically. Less than one per cent of their group failed to answer the question and twice as many replied "often" than was anticipated. This pattern of response accounted for better than half of the chi square. Although fewer single sport coaches stated their position on phosphates, the majority of the three sport coaches did; 15.7% of the three sport coaches recommended the inclusion of this supplement in their diet.

TABLE CI
RECOMMENDATIONS FOR PHOSPHATES ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
One	92	96	171	37	246	642	14.3	14.9	26.6	5.7	38.3	100
Two	33	57	95	39	163	387	8.5	14.7	24.5	10.0	42.1	100
Three	1	19	46	25	69	160	.6	11.8	28.7	15.7	43.1	100
Total	126	172	312	101	478	1189	10.6	14.4	26.2	8.4	40.2	100

$$\chi^2 = 44.4 \quad P = .001$$

*0-no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

Table CII indicates the two sport and three sport coaches expressed themselves differently on tea drinking. The former returned a proportionately small percentage of "oftens" and a similar pattern regarding "seldom" answers was produced by the latter. Each source yielded approximately one-eighth and one-half respectively to the total chi square value. Coaches involved in three high school sports were not inclined to put much restriction on tea, but permitted the boy's preference or suggested it as a daily item. Two sport coaches were less prone to recommend daily consumption, but agreed with the recommendation of "athlete's choice."

TABLE CII
RECOMMENDATIONS FOR TEA ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
One	35	148	121	307	611	5.7	24.2	19.8	50.2	100
Two	23	84	59	208	374	6.1	22.4	15.7	55.6	100
Three	14	19	38	89	160	8.7	11.8	23.7	55.6	100
Total	72	251	218	604	1145	6.2	21.9	19.0	52.7	100

$$\chi^2 = 16.5 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table CIII presents the tabulation of the vitamin recommendations received from coaches involved with one, two, or three sports. The hesitancy to answer questions concerning

food supplements is once again pointed out for consideration. An unusually large number of "no response" answers from the one sport coaches was the origin of nearly a seventh of the accumulated chi square figure. Another quarter of this total was caused by an unexpected number of observations in the "never" column of the two sport coaches replies. Those coaching one sport again have demonstrated a reluctance to answer questions concerning food supplements. Two sports coaches showed a tendency to restrict the intake of vitamins, but for the most part agreed with the consensus of opinion. That was to recommend vitamins or allow freedom of decision.

TABLE CIII
RECOMMENDATIONS FOR VITAMINS ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
One	61	18	40	197	326	642	9.5	2.8	6.2	30.6	50.7	100
Two	23	25	20	120	199	387	5.9	6.4	5.1	31.0	51.4	100
Three	4	4	4	53	95	160	2.5	2.5	2.5	33.1	59.3	100
Total	88	47	64	370	620	1189	7.4	3.9	5.3	31.1	52.1	100

$$\chi^2 = 24.8 \quad P = .01$$

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

Table CIV reflects for wheat germ a pattern similar to that shown for vitamins. The one and two sport coaches differ to some degree with general acceptance of wheat germ supplement. As with vitamins, the one sport coaches failed to

respond more often and the two sport coaches replied "never" more frequently. Fewer of the single sport coaches answered the wheat germ question. The two sport group were more restrictive concerning wheat germ consumption, but most of them left it up to the athlete himself. The two sources mentioned, accounted for an eighth and a third of chi square respectively. Less than one-tenth of the entire chi square figure resulted from the unusually large number of three sport coaches' "athlete's choice" answer, but the percentage giving this answer clearly indicates their strong desire to have the boys assume the responsibility on this particular item.

TABLE CIV
RECOMMENDATIONS FOR WHEAT GERM ACCORDING
TO NUMBER OF SPORTS COACHED

Number of Sports	Distribution of N						Percentage Distribution					
	*0	1	2	3	4	Tot.	0	1	2	3	4	Tot.
One	64	28	56	149	344	641	9.9	4.3	8.7	23.2	53.6	100
Two	26	39	31	81	210	387	6.7	10.0	8.0	20.9	54.2	100
Three	4	6	13	33	104	160	2.5	3.7	8.1	20.6	65.0	100
Total	94	73	100	263	658	1188	7.9	6.1	8.4	22.1	55.3	100

$$\chi^2 = 28.7 \quad P = .001$$

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

Summary of the dietary recommendations made by coaches in relation to the number of sports coached shows that six items in the food list were worthy of discussion. Four of

these were the food supplements of calcium, phosphates, vitamins, and wheat germ. The other two were fried foods and tea.

One sport coaches answered the questions concerning food supplements in a very clear pattern. In each case, more of them did not answer the question. Although the percentage in each case was not large, this group was clearly different. Why more coaches in this group should hesitate to answer these four questions is most interesting. It might be that they have less information regarding the supplements. On the other hand, perhaps those who coach one sport are so single minded that they may represent a different type of individual.

Those coaching two high school sports expressed themselves a little differently from the single sport mentors in regards to the use of vitamins and wheat germ. Although they suggested "athlete's choice" most of the time, they were more prone to suggest that these two supplements never be used by the boys. They were less restrictive about fried foods and recommended tea less often.

Three sport coaches in general were more lenient than their associates. For calcium, phosphates and wheat germ, it was their practice to recommend regular consumption or to leave it to the athlete to decide. Less "no response" observations were noted for these men. Only one failed to reply to the phosphate question. The three sport men were the most lenient about fried foods and clearly favored tea as a beverage for the athletes. This writer wonders if the

multiple sport coaches answered the food supplement inquiry as they did because they believed boys needed them. Such an idea might have been promoted by their observation of the same boys competing in several sports during the school year.

Basis of recommendations. The last factor to be considered for comparison is that which the coaches named to be the source or basis of their dietary recommendations. There might have been other sources possible, but the eight which were presented in the questionnaire were believed to be the most applicable. The responses were divided as shown in Table CV.

Since the figures indicate 55 non-respondents, the question arises as to whether this was due to: (1) an oversight, (2) an unwillingness to answer, or (3) no fitting option. It is this writer's opinion that it was one of the first two reasons, since very few gave a write-in answer.

TABLE CV
DISTRIBUTION OF RESPONSE AS
TO BASIS OF RECOMMENDATIONS

Basis	Number
Athletic Experience	455
Health Courses	144
Nutrition Courses	68
Advice from Coaches	82
Personal Judgment	155
Medical Advice	105
Coaching Clinics	59
Journals or Magazines	80
No response	55
Total	1203

Athletic experience and personal judgment were given as the source of comments by fifty percent of the coaches. Since both are based on personal experience and relatively few referred to medical or professional journals for information, it seems that some better method of educating coaches in the area of nutrition for the athlete is needed. Experience can be good, but it may also be bad. One unfortunate happening in an individual's history could be the cause of a dietary recommendation that has no scientific basis. In other words, the pattern of responses to this question shows why many "old wives' tales" still hover around the training table.

From Table CVI it may be seen that the comparisons of the recommendations made according to the bases of the recommendations yielded thirteen chi square values that were significant at the .05 level of confidence. Breads, cabbage, and gelatin are not discussed because too few observations were counted in those cell sources which produced the greatest portion of the total chi square values. The ten to be discussed are beans, calcium tablets, cheese, coffee, eggs, fowl, honey, pastries, phosphates, and vitamins. Tables CVII through CXVI presents the compiled data for each of these foods.

The bean data, based on the source of the coaches' recommendations, are presented in Table CVII. Corrected shi square figures were obtained by combining the "never" and "seldom" columns. Coaches basing their comments on health

courses answered "never-seldom" more often. This accounted for almost an eighth of the chi square value. Those depending on medical advice replied "often" in greater numbers than expected and accounted for another eighth of the chi square total. Why the former express restrictive comments, and the latter suggest regular consumption is not clear. However, it would seem that the materials gained in a health course should not disagree with those suggestions coming from medical personnel. Whether there has been a mistake in presenting or acquiring the "knowledge" is the question. Perhaps there has been some misunderstanding of the facts.

TABLE CVII

RECOMMENDATIONS FOR BEANS ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic										
Experience	15	112	89	225	441	3.4	25.4	20.1	51.0	100
Health										
Courses	2	42	19	74	137	1.4	30.6	13.8	54.0	100
Nutrition										
Courses	-	10	15	41	66	-	15.1	22.7	62.1	100
Coaches'										
Advice	3	25	8	44	80	3.7	31.2	10.0	55.0	100
Personal										
Judgment	4	33	23	91	151	2.6	21.8	15.2	60.2	100
Medical										
Advice	5	19	28	48	100	5.0	19.0	28.0	48.0	100
Clinics	1	21	15	20	57	1.7	36.8	26.3	35.0	100
Journals	6	18	15	37	76	7.8	23.6	19.7	48.6	100
Total	36	280	212	580	1108	3.2	25.2	19.9	52.3	100

$$\chi^2 = 30.1 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

The compiled recommendations concerning calcium, as shown in Table CVIII are based on eight possible sources from which the coaches have derived their information. Significant numbers did not answer the question, but coaches accepted the use of calcium supplement to varying degrees. Two groups of coaches were not inclined to agree with the others completely. More in the "health course" group answered "often" in unexpected numbers while the "coaches' advice" group answered "never" more often than anticipated. The two sources respectively produced better than one-seventh and one-fifth of the entire chi square. Those coaches who had taken health courses preferred to recommend the consumption of calcium, while those who followed in their "coach's footsteps" were inclined to eliminate this supplement from the boys' diet.

Table CIX presents the cheese data in which the recommendations have been tabulated according to the basis of the coaches' comments. Coaches were inclined to make this dairy food a part of the boys' diet, but one group of them indicated an opposing opinion. Clinic attenders had a larger than expected percentage of "seldom" observations. This source amounted to nearly a tenth of the chi square value. Coaches who depended on medical advice added over one-ninth to this total when they answered "often" a proportionately large number of times. These coaches wanted their athletes to eat cheese regularly. Those who relied on clinics for their

RECOMMENDATIONS FOR CALCIUM ACCORDING TO THE BASIS OF RECOMMENDATIONS

$\chi^2 = 40.9$ $P = .01$
 *0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

dietary information were not as lenient. Coaches who made their suggestions on the basis of their own athletic experience were inclined to agree with the clinic group.

TABLE CIX
RECOMMENDATIONS FOR CHEESE ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic Experience	14	134	107	180	435	3.2	30.8	24.6	41.3	100
Health Courses	4	38	42	54	138	2.9	27.5	30.4	39.1	100
Nutrition Courses	4	18	20	25	67	5.9	26.8	29.8	37.3	100
Coaches' Advice	6	14	16	45	81	7.4	17.2	19.7	55.5	100
Personal Judgment	4	26	36	84	150	2.6	17.3	24.0	56.0	100
Medical Advice	2	16	39	41	98	2.0	16.3	39.8	41.8	100
Clinics	1	23	11	22	57	1.7	40.3	19.3	38.6	100
Journals	2	15	28	33	78	2.5	9.2	35.9	42.3	100
Total	37	284	299	484	1104	3.3	25.7	27.0	43.8	100

$$\chi^2 = 50.3 \quad P = .001$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

As can be seen in Table CX, doffee was recommended "often" in such small numbers, that it was necessary to combine this column and the "athlete's choice" column to properly calculate the chi square value. Not all coaches agreed with the practice of restricting coffee from an athlete's diet. In fact, those basing their comment on

personal judgment left the decision up to the boys more often than not. An unusually large percentage of "athlete's choice" responses supported this statement and provided over one-fifth of the chi square total. Suggestions based on health courses indicated that coaches so educated were less prone to give the athlete this privilege. They returned less "athlete's choice" answers than expected.

TABLE CX
RECOMMENDATIONS FOR COFFEE ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic Experience	131	128	6	172	437	29.9	29.2	1.3	39.3	100
Health Courses	51	46	1	43	141	36.1	32.6	.7	30.5	100
Nutrition Courses	24	12	1	29	66	36.3	18.1	1.5	43.0	100
Coaches' Advice	21	18	4	37	80	26.2	22.5	5.0	46.2	100
Personal Judgment	37	29	3	78	147	25.1	19.7	2.0	53.0	100
Medical Advice	26	28	3	43	100	26.0	28.0	3.0	43.0	100
Clinics	16	17	2	22	57	28.0	29.8	3.5	38.6	100
Journals	26	18	-	33	77	33.7	23.3	-	42.8	100
Total	332	296	20	457	1105	30.0	26.7	1.8	41.3	100

$$\chi^2 = 23.9 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table CXI contains the tabulated responses to the egg question by breaking down the answers into basis of recommendation classifications. A combining of the "never" and

"seldom" columns was necessary to correct the chi square value obtained for this highly regarded food. One group of coaches (health course) responded "often" in unanticipated numbers and reversed this trend in regard to the "athlete's choice" option. Together, the two sources totaled almost a fifth of the entire chi square value. Coaches relying on their own judgment reflected a pattern that was completely the opposite, less "oftens" and more "athlete's choice." Another fifth of the chi square was the result. The health course group therefore enthusiastically supports the idea of boys eating plenty of eggs, but the personal judgment group is inclined to let the athlete use his personal judgment.

TABLE CXI
RECOMMENDATIONS FOR EGGS ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic										
Experience	-	26	254	166	446	-	5.8	56.9	37.2	100
Health										
Courses	-	2	99	38	139	-	1.4	71.2	27.3	100
Nutrition										
Courses	-	3	40	25	68	-	4.4	58.8	36.7	100
Coaches'										
Advice	-	7	40	34	81	-	8.6	49.3	41.9	100
Personal										
Judgment	1	9	73	70	153	.6	5.8	47.7	45.7	100
Medical										
Advice	-	1	64	38	103	-	.9	62.1	36.8	100
Clinics	-	4	38	15	57	-	7.0	66.6	26.3	100
Journals	-	8	52	20	80	-	10.0	65.0	25.0	100
Total	1	60	660	406	1127	.09	5.3	58.5	36.0	100

$$\chi^2 = 35.0 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

Table CXII shows the compiled dietary recommendations made for fowl. The responses are classified by the basis upon which each suggestion was formulated. Fowl was one of the foods which received very little resistance, but approval as a part of the athlete's diet. A larger than expected percentage of the nutrition course coaches did answer "seldom" and thereby gave rise to approximately one-ninth of the total chi square. Another fifth of the chi square was a result of a high ratio of "often" observations from coaches who based their suggestions on medical advice. The coaches basing their responses on a nutrition course were not as favorably disposed toward fowl intake as their associates. Greatest favor for this food occurred within the group who relied on medical advice. Another trend, not noted by the chi square relationships, was that shown by the individuals who used "personal judgment." Those coaches showed a heavy preponderance of "athlete's choice" answers.

The honey data, according to the source of dietary information relied upon by the coaches, is presented in Table CXIII. Since there were so few numbers involved in the "never" category, it was necessary to combine the "seldom" and "never" responses to obtain a corrected chi square figure. Two groups showed different patterns of response in regards to the "never-seldom" columns when compared to the other classifications. Men who based their opinions on personal judgment did not check this option as often as anticipated and were

TABLE CXII
RECOMMENDATIONS FOR FOWL ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic										
Experience	7	64	123	242	436	1.6	14.6	28.2	55.5	100
Health										
Courses	1	29	37	71	138	.7	21.0	26.8	51.4	100
Nutrition										
Courses	-	18	18	32	68	-	26.4	26.4	47.0	100
Coaches'										
Advice	1	15	22	44	82	1.2	18.2	26.8	53.6	100
Personal										
Judgment	1	17	38	95	151	.6	11.2	25.1	62.9	100
Medical										
Advice	-	11	43	49	103	-	10.6	41.7	47.5	100
Clinics	1	12	18	24	55	1.8	21.8	32.7	43.6	100
Journals	1	12	29	35	77	1.3	15.5	37.6	45.4	100
Total	12	178	328	592	1110	1.0	16.0	29.5	53.3	100

$$\chi^2 = 28.8 \quad P = .05$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

TABLE CXIII
RECOMMENDATIONS FOR HONEY ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic										
Experience	8	54	174	204	440	1.8	12.2	39.5	46.3	100
Health										
Courses	4	25	46	61	136	2.9	18.3	33.8	44.8	100
Nutrition										
Courses	1	12	25	30	68	1.4	17.6	36.7	44.1	100
Coaches'										
Advice	1	13	25	43	82	1.2	15.8	30.4	52.4	100
Personal										
Judgment	-	11	63	77	151	-	7.2	41.7	50.9	100
Medical Advice	2	13	49	37	101	1.9	12.8	48.5	36.6	100
Clinics	2	15	20	19	56	3.5	26.7	35.7	33.9	100
Journals	-	9	32	38	79	-	11.3	40.5	48.1	100
Total	18	152	434	509	1113	1.6	13.6	38.9	45.7	100

$$\chi^2 = 31.5 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

responsible for slightly less than a fifth of the chi square. Those who took their opinions from clinic information answered directly the opposite. This situation was the origin of more than one-fourth of the chi square value. Thus we see that those who depend on personal judgment responded more favorably about the place of honey in in a young boy's diet. Not only do they show more tendency to limit its use, but they do not permit the athlete much individual option.

According to the data in Table CXIV it is clearly the opinion of coaches that pastries do not have a place in a high school athlete's diet. This view is common to most coaches no matter what they consider to be their basis for making dietary recommendations. Those coaches who have had nutrition courses and who act according to medical advice clearly showed their position by virtue of their high ratio of "never" responses. Their respective contributions to the entire chi square value were one-seventh and one-ninth. They did not merely wish to limit pastry intake to several times a week; they preferred to remove it completely from the menu. Thus we see not a real difference of opinion, but one of degree.

Table CXV presents the phosphate recommendations in relationship to the sources on which the coaches have based their comment. The response of the coaches to this supplement was uncertain. First, a significant number gave no reply; second, a very slim majority answered "athlete's choice";

TABLE CXIV
RECOMMENDATIONS FOR PASTRIES ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*1	2	3	4	Tot.	1	2	3	4	Tot.
Athletic										
Experience	106	222	7	105	440	24.0	50.4	1.5	23.8	100
Health										
Courses	21	76	2	37	136	15.4	55.8	1.4	27.2	100
Nutrition										
Courses	23	24	-	21	68	33.8	35.2	-	30.8	100
Coaches'										
Advice	12	48	2	19	81	14.8	59.2	2.4	23.4	100
Personal										
Judgment	25	80	1	45	151	16.5	52.9	.6	29.8	100
Medical										
Advice	30	45	1	24	100	30.0	45.0	1.0	24.0	100
Clinics	12	35	1	10	58	20.6	60.3	1.7	17.2	100
Journals	11	49	-	19	79	13.9	62.0	-	24.0	100
Total	240	579	14	280	1113	21.5	52.0	1.2	25.1	100

$$X^2 = 29.2 \quad P = .01$$

*1=never, 2=seldom, 3=often, 4=athlete's choice

and third, better than twenty percent of them thought it should seldom be eaten. However, the differences between the observed and the expected responses from three groups are notable.

Coaches relying on athletic experience as their guide, replied "often" fewer times than anticipated. Thereby, contributing one-ninth of the entire chi square. "Health Course" coaches gave half as many "seldoms" than expected and so accounted for about a tenth of the chi square figure. Finally, individuals who developed their dietary opinions from clinics, answered "often" a greater percentage of times

TABLE CXV

RECOMMENDATIONS FOR PHOSPHATES ACCORDING
TO BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Percentage Distribution				
	*0	1	2	3	4	Tot.	0	1	2	Tot.
Athletic Experience	56	76	131	22	170	455	12.3	16.7	28.7	100
Health Courses	14	10	51	15	54	144	9.7	6.9	35.4	100
Nutrition Courses	4	16	18	5	26	69	5.8	23.1	26.0	100
Coaches' advice	8	10	27	4	33	82	9.7	12.2	32.9	100
Personal Judgment	15	22	29	16	73	155	9.6	14.1	18.7	100
Medical Advice	10	15	27	15	38	105	9.5	14.2	25.7	100
Clinics	8	7	12	14	17	58	13.7	12.0	20.6	100
Journals	9	15	14	8	34	80	11.2	18.7	17.5	100
Total	124	171	309	99	445	1148	10.8	14.9	26.9	100

 $\chi^2 = 63.8$ P = .001

*0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

than was anticipated. The contribution to the chi square value from the source amounted to one-quarter of the total.

Several conclusions may be drawn from these facts. The outstanding point is that the "clinic" coaches more often recommended phosphates in the athlete's daily menu. It is also noted that these same coaches showed the greatest percent of non-respondents to the phosphate question. Perhaps there is some correlation between these two observations. Some coaches may not have wanted to indicate the ideas they took home from their clinics.

The athletic experience group of coaches indicated that there was less favor among this group to recommend phosphates frequently. Those who said their ideas were based on past health courses gave a clear demonstration that they did not think phosphates need be completely eliminated from the diet, but that its intake should be controlled.

The vitamin data shown in Table CXVI shows very little response in the "never" and "seldom" columns. Therefore, in order to obtain a corrected chi square value it was necessary to combine these two categories of the recommendations for vitamins that were classified according to the basis of the recommendations. Coaches overwhelmingly approved of vitamins as a part of the diet as can be seen by the "often" and "athlete's choice" reply figures. Those guided by health courses or by personal judgment showed an unexpected pattern. The former returned a high ratio of "oftens" and the latter a

TABLE CXVI
RECOMMENDATIONS FOR VITAMINS ACCORDING TO
BASIS OF RECOMMENDATIONS

Basis of Comments	Distribution of N					Tot.	Percentage Distribution					Tot.
	%0	1	2	3	4		0	1	2	3	4	
Athletic Experience	41	29	26	140	219	455	9.0	6.3	5.7	30.7	48.1	100
Health Courses	12	1	9	60	62	144	8.3	.6	6.2	41.6	43.0	100
Nutrition Courses	3	3	6	17	40	69	4.3	4.3	8.7	24.6	57.9	100
Coaches' Advice	10	-	7	21	44	82	12.2	-	8.5	25.6	53.6	100
Personal Judgment	6	2	6	43	98	155	3.8	1.2	3.8	27.7	63.2	100
Medical Advice	5	-	8	42	50	105	4.7	-	7.6	40.0	47.6	100
Clinics	5	2	1	24	26	58	8.6	3.4	1.7	41.3	44.8	100
Journals	3	9	1	22	45	80	3.7	11.2	1.2	27.5	56.2	100
Total	85	46	64	369	584	1148	7.4	4.0	5.5	32.1	50.8	100

$\chi^2 = 41.3$ $P = .01$
 *0=no response, 1=never, 2=seldom, 3=often, 4=athlete's choice

high ratio of "athlete's choice" answers. Each accounting for approximately one-tenth of the entire chi square value. The conclusion is that health course oriented coaches are more prone to recommend that the boys should take vitamins every day, while those using personal judgment are more inclined to leave it up to the boys. The greatest percentage of "never" answers came from the journal readers, but note that this numbered only nine observations.

Coaches who formulated their ideas upon their own athletic experience restricted cheese consumption more and were less clear in their response to the phosphate question.

Six of the ten items in this section had significant recommendation differences because coaches who stated they based their responses on health courses answered differently than expected. Calcium and vitamins were most enthusiastically recommended for the diet, but phosphates were not given this support. Beans were restricted more often by the health course group, and coffee intake was not given over to the athlete's control. Eggs were the one food to which this group gave its greatest support.

Coaches who stated they based their responses on nutrition courses differed by placing fowl and pastries in restricted positions.

Individuals who passed on the dietary recommendations which they stated had been gathered from their own athletic coaches showed little variation in their pattern of response.

It was their opinion, and a strong one, that calcium was not needed in the diet. No other group said "never" as repeatedly or "often" as few times.

Personal judgment was the basis of five foods' recommendations that differed from the comments made by the coaches in general. This group was generally less restrictive in the control of diet. They responded "athlete's choice" more in the case of coffee, eggs, fowl, and vitamins. This was also the case for honey, and for this food they showed even less tendency to remove it from the boys' menus.

Theoretically, medical advice should be the best basis of making dietary recommendations. Those coaches who claim to follow such advice suggested that three foods should be included more often in the diet than was expressed in the total response. These foods were beans, cheese, and fowl. Pastries received the greatest restriction from this group, in that they were much more in favor of it being left out of the high school athlete's diet.

Athletic clinics have become quite popular in the last two decades and more recently, nutrition has received greater attention at these workshops. One effect of these clinics has been to cause a large number of coaches to use phosphates as a dietary supplement. Clinic oriented coaches have also indicated that they prefer the boys to eat cheese and honey less often than recommended in other circles.

Journal readers seem to show a pattern that one might call average. Those coaches responded in the most part as expected. Fewer of this group failed to respond to the vitamin question, but showed the greatest "never" response of any of the eight classifications.

General Response

A brief resume of those foods which were recommended or restricted has already been given, but further discussion of the data presented in Table II is advisable. This will be done by limited grouping of the foods contained within the list.

Consideration of the three beverages, other than milk, was most interesting. Carbonated beverages were strongly contra-indicated (31% "never" and 41% "seldom") and coffee a little less strongly (29% and 26%). Tea was well received by a majority of the coaches. Six percent replied "never," 22% seldom," 19% "often," and the remainder left the decision up to the athletes. Although the caffeine content of coffee is the most probable reason for the restriction, the same response was not noted for tea. Since the caffeine content is almost identical, this result was unexpected.

The responses received concerning dairy products presented some inconsistencies which are worth further discussion. Milk was highly recommended by 56% of the coaches and another 37% made the boy responsible for his milk intake. No other dairy product was as well received. In fact, 43%

of the coaches said that milk shakes should seldom or never be consumed. The restrictions on ice cream, cheese, and butter totaled 29%, 28%, and 19% respectively. Butter consumption was recommended less often (35%) than milk, but more often than the others. All of the dairy products totaled at least 45% in the "athlete's choice" column. The reticence of some coaches to recommend dairy products is not completely explainable.

Previous mention has been made of the unexpectedly large "no response" figure for the four food supplements. The "never" and "seldom" columns also indicated that the greatest hesitation or confusion was centered on calcium and phosphates. Their responses were about 8% and 15% for calcium and 14% and 26% for phosphates. Replies for vitamins and wheat germ were inclined to be more positive. Their respective "often" and "athlete's choice" answers were 31% and 52% and 22% and 56%. About 51% of the coaches left calcium intake up to the athlete, but only 40% did so for phosphates.

Many have suggested that gelatin and honey are foods that are most beneficial to athletes. This opinion was also indicated by the coaches involved in this study. Less than 2 percent of them replied "never" to these two items and 38% recommended "often." About half of them made the boy responsible for gelatin and honey consumption.

Fruits and fruit juices received more responses in the "often" column than any other food or supplement. Over 68%

of the mentors gave this answer and only one percent of them made any negative comment.

The recommendations for beef were slightly less (62%) than that for fruit and fruit juices. Other meats were not so well received by the nation's coaches. Pork had 8% of its responses in the "never" column and 40% in the "seldom" column. Perhaps there was a concern over the fatty portion of pork cuts. Fish and fowl were not as acceptable as beef, but more so than pork. Approximately one-third of the coaches recommended both, and better than half of them gave the option to the athletes. Another source of animal protein is eggs, and about 57% of the coaches recommended their inclusion in the daily diet. Only six percent limited the use of eggs.

Beans, cabbage and potatoes were the only vegetables considered in this study. Coaches showed some concern over the use of the first two, as is indicated by the "never" and "seldom" columns in Table II. It is noted that approximately 50% of them asked the boys to use their own discretion. Potatoes were given a more favorable comment as 36% of the replies were counted in the "often" category. The gas producing qualities of beans and cabbage may explain in part the negative attitude.

Four items which have not been discussed are candy, fried foods, pastries, and breads. The first three of these were in great disfavor with the coaches. The two sweets,

candy and pastries, had respective "never" replies of 16% and 21%, and "seldom" replies of 52% and 50%. Fried foods would of course include many individual items and many coaches do not want boys to eat any type of food prepared in this manner. The coaches' answers amounted to 20% for "never" and 50% for "seldom." Perhaps the fact that certain foods, such as chicken or fish, are often fried may account for some of the negative recommendations received for those foods. Breads had minimal "never" responses (.3%) and only 15% answered "seldom"; the remainder of the replies were divided between "often" (38%) and "athlete's choice" (46%).

Discussion

Any attempt to hypothesize the reasons for the results presented by the data would be most difficult because of the many factors that can enter into a study of this nature. The investigation was designed to study the association between variables; therefore, causation may not be implied. For that reason, in this section a brief summary of the findings is reported.

In general the high school coaches of this nation recommended that their athletes include beans, beef, bread, butter, cabbage, cheese, eggs, fish, fowl, fruit, fruit juices, gelatin, honey, ice cream, milk, potatoes, tea, vitamins, and wheat germ in the normal diet. They contra-indicated candy, coffee, fried foods, pastries, and carbonated beverages.

The opinions expressed concerning the consumption of calcium, milk shakes, and pork were less definite and difficult to categorize.

As expected, the sectional practices of the coaches were quite varied. The New England and Pacific Coast individuals indicated a practice of permitting the high school athlete to regulate his own diet. West North Central coaches expressed the greatest difference of opinion in the direction of restrictive recommendations. The responses of the other six sections fell somewhere between those given by the three above named areas.

Fourteen of the fifteen items with significant differences in the sport coached classification were a result of the answers given by wrestling coaches. They restricted the intake of foods which bearing on weight control. The greatest consistency of responses came from the football coaches.

A pattern of restrictive recommendations was noted by those coaches who came from communities with a small population, a rural location, or a low high school enrollment. Coaches from the larger or more urban type communities were more inclined to make use of wheat germ and to limit phosphates.

Summary of the results obtained in regards to the age of the coach made one thing clear. Younger coaches showed a more restrictive pattern of answers, while the older coaches

were more lenient. Coaches over fifty did not recommend tea as freely as others did, but made recommendations similar to those stated for coffee.

The results in regard to the age of the coach were very similar to those expressed in the analyses by experience of the coach. Coaches with less experience were more restrictive, recommended tea; but limited coffee intake. Less restriction seemed to parallel greater experience and these men contra-indicated both coffee and tea.

The data within this study indicates that the homogeneity of recommendations increased as the professional preparation in physical education increased. In general, those people without a major or minor in the field were more lenient about the limitations placed on most of the foods in the list, and minors were the most restrictive.

The opinions of the one sport coaches and three sport coaches toward supplements are most interesting. More of the former did not answer the questions and the latter showed a definite pattern. Those coaching three sports either recommended calcium, phosphates, vitamins, and wheat germ or left it to the athlete's discretion.

A majority of the coaches concerned with this study based their recommendations on athletic experience. Very few seem to have placed their confidence in the hands of medical experts, nutritionists or educational leaders. No pattern of negative or positive recommendations is clearly

identifiable, but another is. The majority of the differences observed were found under the health course, nutrition course, medical advice or personal judgment classifications. A homogeneity of response is reflected by those basing their recommendations on athletic experience.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

A total of 551 schools of the 26,046 public high schools in the United States were selected to participate in an investigation of the current practices of secondary coaches in making dietary recommendations to their varsity athletes. Four-hundred-fifty-six schools responded to the questionnaire. The 1,203 coaches responding, were head coaches of basketball, cross country and track, football, swimming, and wrestling.

To pursue this problem, the relationships between these recommendations and ten selected background factors were analyzed by the chi square technique. The comparisons were made on a basis of varying degrees of acceptance or rejection of twenty-eight foods. The reliability of the answers for the individual foods ranged from .45 to 1.00.

Conclusions

On the basis of this study, the following conclusions seem justifiable:

1. High school coaches enthusiastically recommend beef, eggs, fruit, fruit juices and milk for the athletes.
2. Foods most often contra-indicated by high school coaches are candy, coffee, fried foods, pastries, and carbonated beverages.

3. Coaches are uncertain about or do not wish to state their position as to the use of supplements.
4. Dietary recommendations made by high school coaches vary greatly according to the section of the country.
5. Coaches from the New England and Pacific Coast states allow the athlete greater freedom in the selection of his diet.
6. West North Central coaches are more restrictive in their dietary recommendations.
7. Except for the restrictive practices of the wrestling coaches, there is very little difference between the recommendations of the coaches of various sports.
8. Coaches from the smaller and more rural areas place greater limitations on the high school athlete's dietary practices. This is also true for the younger and less experienced coaches.
9. Physical education majors make similar dietary recommendations and exercise more control over the athlete's diet than the minors or the individuals not professionally trained in physical education. The latter group is most lenient in control of the athlete's diet.
10. Coaches working in three sports are less restrictive in dietary controls, but favor the inclusion of supplements in the diet.

11. A major portion of coaches base their dietary recommendations on their own athletic experience. Very few follow medical or nutritional advice.
12. There is little consistency in the manner in which high school athletes are being advised to control their food consumption.

Recommendations

The following recommendations are made on the basis of the results and conclusions of this study:

1. This study was restricted to five sports in the public secondary schools of the nation. It would seem desirable and important that similar studies be conducted: at the college level; in private and parochial schools; to include other sports; within the scope of any single sport; and in selected geographical areas. A study of the practices of those coaches who perennially produce outstanding teams might also be quite productive.

2. Investigation of the educational requirements and processes in the subjects of human nutrition and physiology of exercise for physical educators and athletic coaches is recommended.

3. The effect of the dietary recommendations made by high school coaches on students is unknown. Studies to determine the effects of such recommendations on the athlete and the secondary school population are needed.

4. Additional investigation of the instrument included within this study might further validate the data presented herein.

Much research is needed in this area to dispel personal prejudices, ignorance, and unfounded conclusions. The final problem then is to see that nutritional information is made readily available to those in positions of responsibility.

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APPENDIX

APPENDIX A

SUMMARY OF THE SAMPLE RETURNS

APPENDIX A
SUMMARY OF THE SAMPLE RETURNS

Region and State		Sample Number	Returns	Percentage
I.	New England	26	20	76.9
	1. Maine	6	5	83.3
	2. New Hampshire	2	2	100.0
	3. Vermont	2	1	50.0
	4. Massachusetts	10	6	60.0
	5. Rhode Island	2	2	100.0
	6. Connecticut	4	4	100.0
II.	Middle Atlantic	65	56	85.1
	1. New York	34	30	88.2
	2. New Jersey	6	4	66.6
	3. Pennsylvania	25	22	88.0
III.	East North Central	92	83	90.2
	1. Ohio	25	23	92.0
	2. Indiana	21	18	85.7
	3. Illinois	18	16	88.8
	4. Michigan	15	15	100.0
	5. Wisconsin	13	11	84.6
IV.	West North Central	92	77	83.7
	1. Minnesota	13	13	100.0
	2. Iowa	21	16	76.2
	3. Missouri	16	14	87.5
	4. North Dakota	7	5	71.4
	5. South Dakota	7	6	85.7
	6. Nebraska	12	10	83.3
	7. Kansas	16	13	81.2
V.	South Atlantic	84	63	75.0
	1. Delaware	2	2	100.0
	2. Maryland	5	3	60.0
	3. District of Columbia	1	1	100.0
	4. Virginia	12	12	100.0
	5. West Virginia	7	7	100.0
	6. North Carolina	22	13	59.1
	7. South Carolina	10	9	90.0
	8. Georgia	17	9	52.9
	9. Florida	8	7	87.5

APPENDIX A (continued)

Region and State		Sample Number	Returns	Percentage
VI.	East South Central	59	40	67.8
	1. Kentucky	13	9	69.2
	2. Tennessee	11	10	90.9
	3. Alabama	17	6	35.3
	4. Mississippi	18	15	83.3
VII.	West South Central	82	69	84.1
	1. Arkansas	14	11	78.6
	2. Louisiana	12	11	92.5
	3. Oklahoma	18	15	83.3
	4. Texas	38	32	84.2
VIII.	Pacific	26	24	92.3
	1. Washington	8	8	100.0
	2. Oregon	6	6	100.0
	3. California	12	10	83.3
IX.	Mountain	25	24	96.0
	1. Montana	5	5	100.0
	2. Idaho	3	3	100.0
	3. Wyoming	2	1	50.0
	4. Colorado	6	6	100.0
	5. New Mexico	3	3	100.0
	6. Arizona	2	2	100.0
	7. Utah	2	2	100.0
	8. Nevada	2	2	100.0
Totals		551	456	82.7

APPENDIX B

LETTERS FROM THE
AMERICAN AND CANADIAN MEDICAL ASSOCIATIONS

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street . Chicago 10, Illinois

THIS IS A COPY

Mr. William A. Horwood
Assistant Professor
Men's Physical Education
Division of H.P.E.R.
Indiana State College
Terre Haute, Indiana

Dear Mr. Horwood:

In response to your letter relating to the attitude of the American Medical Association Committee on the Medical Aspects of Sports relative to nutrition for the athlete, may I quote from the Proceedings of the Second National Conference on the Medical Aspects of Sports.

"Optimum nutrition for an athlete should be a concomitant rather than a substitute for good physical training. Modifications of the diet may be important at the outset of training to reach a desirable weight. In the course of training, depending on the type of sport, other variations in diet may be beneficial, but on the whole an athlete's diet should not be essentially different from that of any normal person."

The above quotation would be supported in general by the Committee on the Medical Aspects of Sports, and in fact some of the statements of the Committee have been comparable in nature.

Please let us hear from you if we can be of any further assistance.

Sincerely,

Fred V. Hein, Ph.D.
Secretary, Committee on the
Medical Aspects of Sports

FVH:mw-4909

THE CANADIAN MEDICAL ASSOCIATION
LE JOURNAL DE
L'ASSOCIATION MEDICALE CANADIENNE

April 8, 1963

Mr. William A. Horwood
Asst. Professor
Men's Physical Education
College of William and Mary
Williamsburg, Virginia

Dear Mr. Horwood:

The article by Dr. E. H. Bensley, to which you refer in your letter of April 3, was entitled "L'Alimentation des Athletes" and published in French in a June issue, 1951, of the Journal (Canad. Med. Ass. J., 60: 504, 1951). I regret that no back copies of this journal are available nor are any tear sheets of the article available from this office. You may wish to correspond with Dr. Bensley concerning the possibility of obtaining a reprint from him. His address is The Montreal General Hospital, Montreal, Quebec.

You have also indicated an interest in The Canadian Medical Association's position on nutrition for athletes. At a combined meeting on March 8, 1963 of the C.M.A. National Committee on Physical Education and Recreation and the National Committee of the Canadian Association for Health, Physical Education and Recreation (C.A.H.P.E.R.).

"It was agreed that athletes should eat a normal well-balanced diet during the training period. They should take their usual food intake the day of the game. No 'exotic' or special food is necessary during conditioning or before competition such as carbohydrates, etc. Extra vitamins or minerals are not necessary."

I hope this information meets your needs.

Yours very truly,

G. T. Dickinson, M.A., M.D.
Associate Editor

GTD/gh

APPENDIX C

QUESTIONNAIRE AND COVERING LETTERS

Instructions for the Questionnaire
Concerning
Current Practices of Coaches in Recommending Diets for Athletes

To Coaches: This questionnaire is designed to indicate the diet recommendations you make to the team members of the sport you are coaching. Your information will be treated as confidential, with the essential data being reduced to IBM code.

To indicate your response, just place the number or numbers of the proper answer to the left of the question. Please disregard the numbering system which is for tabulating purposes. The pages headed **Diet During Competitive Season** and **Pre-Contest Diet** may be answered by check marks and a brief comment concerning those reasons about which the coach has very strong feeling. Any additional comment may be written at the bottom of this page.

Your cooperation in taking time to complete this questionnaire will be genuinely appreciated.

William A. Horwood
Michigan State University

_____ 6. Size of community in which school is located.

- | | |
|---------------------|----------------------|
| 1. under 2,500 | 5. 50,001 to 500,000 |
| 2. 2,501 to 10,000 | 4. 25,001 to 50,000 |
| 3. 10,001 to 25,000 | 6. 500,001 and over |

_____ 7. The children in your school tend to come from what type of area?

- | | |
|-------------------------|---------------|
| 1. urban | 4. rural |
| 2. suburban-residential | 5. rural-farm |
| 3. suburban-industrial | |

_____ 8. Enrollment of the high school.

- | | |
|------------------|------------------|
| 1. less than 200 | 4. 1,000 - 2,500 |
| 2. 200 - 499 | 5. over 2,500 |
| 3. 500 - 999 | |

_____ 9. Age of the coach.

- | | |
|------------|------------|
| 1. 20 - 29 | 3. 40 - 49 |
| 2. 30 - 39 | 4. over 50 |

_____ 10. Number of years in coaching.

- | | |
|---------------------|------------------|
| 1. less than 1 year | 4. 11 - 20 years |
| 2. 1 - 5 years | 5. over 20 years |
| 3. 6 - 10 years | |

_____ 11. During your college years, what preparation did you have in physical education?

- | | | |
|----------|----------|---------|
| 1. major | 2. minor | 3. none |
|----------|----------|---------|

_____ 12-14. Check the degrees you have earned and indicate your major area of study in each.

- | | | |
|---------------------------|-------|-------|
| 1. Bachelor or equivalent | _____ | _____ |
| 2. Masters or equivalent | _____ | _____ |
| 3. Post-masters | _____ | _____ |
| 4. Specialist | _____ | _____ |
| 5. Doctorate | _____ | _____ |

_____ 15-19. Sports of which you are head coach.

- | | |
|-------------------------------|--------------|
| 1. Basketball | 4. Swimming |
| 2. Cross Country and/or track | 5. Wrestling |
| 3. Football | |

_____ 20. Leave this space blank.

_____ 21-22. Usual number of boys on squad. _____

_____ 23. What do you consider to be the **one** most important source of your dietary recommendations?

- | | |
|------------------------|---------------------------------|
| 1. Athletic experience | 5. Personal judgement |
| 2. Health courses | 6. Medical advice |
| 3. Nutrition courses | 7. Coaching clinics |
| 4. Advice from coaches | 8. Journal or magazine articles |

Diet During Competitive Season (excluding pre-contest diet):

This section pertains to those recommendations concerning diet which you might suggest to your athletes during the training seasons and the reason for making the recommendation. Check one of the four responses for each food and briefly state the reason when you have a **STRONG OPINION concerning a specific restriction or recommendation.**

		Never	Seldom	Often	Athletes Choice	
	FOODS					REASONS*
25-26	Bean Family					
27-28	Beef					
29-30	Breads					
31-32	Butter					
33-34	Cabbage Family					
35-36	Candy					
37-38	Calcium Tablets					
39-40	Cheese					
41-42	Coffee					
43-44	Eggs					
45-46	Fish					
47-48	Fowl					
49-50	Fried Foods					
51-52	Fruit					
53-54	Fruit Juices					
55-56	Gelatin					
57-58	Honey					
59-60	Ice Cream					
61-62	Milk					
63-64	Milk Shakes					
65-66	Pastries					
67-68	Phosphates					
69-70	Pork					
71-72	Potatoes					
73-74	Carbonated Drinks					
75-76	Tea					
77-78	Vitamins (Specify)					
79-80	Wheat Germ					

CODE TO RECOMMENDATIONS

Never—not permitted at any time

Seldom—from one to three times weekly

Often—daily

Athletes Choice—player selects own diet completely

*Additional comments may be made on the first page.

Pre-Contest Diet:

Responses in this portion concern those recommendations about diet just prior to competition; that is, the day of the contest and the day prior to the contest. Check one of the four responses for each food and briefly state the reason when you have a **STRONG OPINION** concerning a specific restriction or recommendation.

	FOODS	Don't Eat Day Prior Or Day of Contest	Don't Eat on Day of Contest	Don't Eat With Pre-Game Meal	No Recommendations	REASONS*
25-26	Bean Family					
27-28	Beef					
29-30	Breads					
31-32	Butter					
33-34	Cabbage Family					
35-36	Candy					
37-38	Calcium Tablets					
39-40	Cheese					
41-42	Coffee					
43-44	Eggs					
45-46	Fish					
47-48	Fowl					
49-50	Fried Foods					
51-52	Fruit					
53-54	Fruit Juices					
55-56	Gelatin					
57-58	Honey					
59-60	Ice Cream					
61-62	Milk					
63-64	Milk Shakes					
65-66	Pastries					
67-68	Phosphates					
69-70	Pork					
71-72	Potatoes					
73-74	Carbonated Drinks					
75-76	Tea					
77-78	Vitamins (Specify)					
79-80	Wheat Germ					

*Additional comments may be made on the first page.

MICHIGAN STATE UNIVERSITY East Lansing

College of Education • Department of Health Physical Education and Recreation

March 28, 1960

Dear Administrator:

You are probably aware that many athletic coaches place dietary restrictions on their athletes. The foods or dietary supplements most often restricted or recommended have not been previously identified. The extent of the practice of withholding or supplementing foods or other substances in the diet of athletes is also unknown.

Your school has been carefully selected in a nationwide sample to participate in this study. Therefore, if it is to be a success, a response from each of the head coaches in your school is needed.

Although we realize that this is a busy time of year for you, we are asking you to take the few minutes necessary to distribute these forms to your head coaches. The questionnaires are color coded and identified according to specific sports. If your program does not include any one or more of the sports listed, please so indicate on the appropriate form. The questionnaires should be given to the coaches as indicated by the following code:

Blue	-	Basketball
Buff	-	Cross Country and/or Track
Canary	-	Football
Green	-	Swimming
White	-	Wrestling

Following completion of the questionnaires by your coaches, please place them in the business reply envelope enclosed.

It is only through the cooperation of persons like you that such problems of national nutritional significance may even be approached. We deeply appreciate your helpfulness in this matter.

Cordially yours,

William A. Horwood
Michigan State University

MICHIGAN STATE UNIVERSITY East Lansing

College of Education • Department of Health Physical Education and Recreation

May 2, 1960

Dear Administrator:

Some time ago you were sent a questionnaire from the Michigan State University Department of Health, Physical Education and Recreation, dealing with "Dietary Recommendations by High School Coaches".

The purpose of this study is to determine just what recommendations are being made by high school coaches to basketball, track, football, swimming and wrestling teams. All information will be treated as confidential. No names of persons or schools will be associated with the evaluation and summarization of this study.

We would appreciate it very much if you could take the few minutes necessary to have the forms completed and returned to us.

Sincerely yours,

William A. Horwood

MICHIGAN STATE UNIVERSITY East Lansing

College of Education . Department of Health Physical Education and Recreation

May 23, 1960

Dear Administrator:

Some time ago you were sent a questionnaire and a subsequent follow-up letter from the Michigan State Department of Health, Physical Education and Recreation, dealing with "Dietary Recommendations by High School Coaches."

Since your school is one of a carefully selected nationwide sample, it is very important that we receive your reply. We would appreciate it very much if you could fill out and return this questionnaire as soon as possible.

It will be several months before all the data is analyzed, but a condensed report will be mailed to all cooperating schools prior to any publications.

Any help you can give us in this regard would be deeply appreciated.

Cordially yours,

William A. Horwood

MICHIGAN STATE UNIVERSITY East Lansing

College of Education • Department of Health Physical Education and Recreation

September 14, 1960

Dear Sir:

We are making an intensive effort to help coaches make dietary recommendations for high school athletes. Your school has been selected as one of a nation-wide sample to determine what the current practices are.

The impact coaches have on high school athletes and other students is well known. Because of this it is our desire to supply them with the best current information. There are many dietary practices that have been handed down. For example, some coaches insist the athletes eat large quantities of fresh tomatoes during the pre-season training program, others restrict milk from endurance runners. Most of the practices are sound but in several instances in controlled laboratory investigations we have found that dietary deficiencies could result. We are concerned as to the extent of these practices.

Would you take the time to have your coaches complete the enclosed checklists. When the study is completed we will send you the results for your use.

We appreciate your help in this matter.

Cordially,

"Biggie" Munn
Director of Athletics,
Health, Physical Education
and Recreation

September 28, 1960

Dear Administrator:

As one of a number of carefully selected schools, you recently received a questionnaire concerning "Dietary Recommendations for High School Athletes" from Michigan State University. If this material is still in your files, I need

YOUR HELP!!

Why? To complete an important study.

Please disregard the message if you have already returned your forms. Thank you for your help and cooperation.

Sincerely yours,

William A. Horwood
Assistant Professor

October 12, 1960

Dear Sir:

In mid-September a questionnaire concerning recommendations made by high school coaches to their athletes was sent to your office. For some reason, we have not received your reply. Please let us know if you need additional forms.

This is an important nutritional study and it is only through your help that we can ever hope to complete it. Thank you for taking time in a busy schedule. Results will be forwarded to you as soon as possible.

Sincerely yours,

William A. Horwood
Assistant Professor

COLLEGE OF WILLIAM AND MARY

Founded in 1693

Williamsburg, Virginia

September 7, 1961

Dear Sir:

On March 28, 1961, a questionnaire concerning current practices of high school coaches in recommending athletic diets was mailed to your school administrator. Following that several follow-up letters were sent, and then on September 14, 1960, a duplicate of the original questionnaire was mailed to him. Eighteen months have elapsed since our first request for information, and as yet I have received no reply from your school. (Your reply may have been one of those lost in the mails.) I am, therefore, directing this letter to you, the Athletic Director, with the hope that you will be able to assist me.

In order for us to help coaches make dietary suggestions, we must determine the current practices. Your school was originally selected as one of a nation-wide sample, and we need your answer to properly complete the investigation.

Although we realize that this is a busy time of the year for you, we are asking you to take the few minutes necessary to distribute these forms to your head coaches. If you will have them complete the appropriate checklist, we will send you the results for your use.

Thank you for your cooperation.

Sincerely yours,

William A. Horwood
Assistant Professor
Men's Physical Education

COLLEGE OF WILLIAM AND MARY

Founded in 1693

Williamsburg, Virginia

March 28, 1962

Dear Coach:

This is a final and desperate plea!

Please Help Me

by filling out the enclosed forms and returning them as soon as possible.

If you have no athletic program or no recommendations, indicate this fact on the forms and return them to me. I must have a reply from your school.

My wife begs you, my two sons beg you and I implore you. Please answer ----- you control the completion of my degree. Thanks! Thanks! Thanks!

Sincerely yours,

Art Horwood
Assistant Professor
Men's Physical Education

MICHIGAN STATE UNIVERSITY East Lansing

College of Education • Department of Health Physical Education and Recreation

May 17, 1960

Dear Mr.

A number of the questionnaires that I have received have left a question as to the accuracy of my coding system. Since this study is of much importance to the coaching profession, the accuracy is paramount.

If it is not too troublesome, could you possibly take the time to once more fill out the forms? This should help clarify any discrepancies in the coding. Any help you can give us in this regard would be deeply appreciated.

It will be several months before all the data is analyzed, but a condensed report will be mailed to all cooperating schools prior to any publication.

Thanks once again for your helpfulness.

Cordially yours,

William A. Horwood

APPENDIX D

IBM CODING PLAN

CARD NO. I

Columns

- 1-5 Serial Number
- 6 Community size: under 2500 (1), 2501 to 10,000 (2), 10,001 to 25,000 (3), 25,001 to 50,000 (4), 50,001 to 500,000 (5), over 500,000 (6).
- 7 School area: urban (1), suburban-residential (2), suburban-industrial (3), rural (4), rural-farm (5), other (6).
- 8 School enrollment: less than 200 (1), 200-499 (2), 500-999 (3), 1,000-2,500 (4), over 2,500 (5).
- 9 Coach's age: 20-29 (1), 30-39 (2), 40-49 (3), over 50 (4).
- 10 Years in coaching: less than 1 (1), 1-5 (2), 6-10 (3), 11-20 (4), over 20 (5).
- 11 Physical education preparation: major (1), minor (2), none (3).
- 12-14 Degree earned: column 12: bachelor (1), masters (2), post-masters (3), specialist (4), doctorate (5).
Major area: columns 13-14 (see attached Code A).
- 15-19 Head coach of:
- | | | | |
|----|---------------------|---------|--------|
| 15 | Basketball | yes (1) | no (2) |
| 16 | Cross Country/Track | yes (1) | no (2) |
| 17 | Football | yes (1) | no (2) |
| 18 | Swimming | yes (1) | no (2) |
| 19 | Wrestling | yes (1) | no (2) |
- 20 Number of sports - head coach of (1-5 possible).
- 21-22 Number of boys on team (01-99), 00 no response.
- 23 Source of recommendations: athletic experience (1), health courses (2), nutrition courses (3), advice from coaches (4), personal judgment (5), medical advice (6), coaching clinics (7), journals (8).
- 24 Card number (1).
- 25-27 Recommendations and reason for season: two columns per food; first column has five (5) possible answers, second column has eleven (11) possible answers. See attached Code B.
- 77-80 Recommendations and reason for season: two columns per food; first column has five (5) possible answers, second column has ten (10) possible answers. See attached Code C.

CODE A

MAJOR AREA OF PREPARATION

00	No response
01	Physical Education
02	Industrial Arts
03	Social Studies
04	Administration
05	Business/Commercial
06	Chemistry
07	History
08	Mathematics
09	English
10	Education
11	Biology
12	General Science
13	Guidance and Counseling
14	Agriculture
15	Psychology
16	Languages
17	Economics
18	Physical Therapy
19	Political Science
20	Physical Science
21	Natural Science
22	Music
23	Geology
24	Pharmacy
25	Art

CODE B

RECOMMENDATIONS DURING COMPETITIVE SEASON

First Column

0 no response
 1 never
 2 seldom
 3 often
 4 athlete's choice

Second Column

0 no response
 1 indigestion
 2 fat or grease
 3 cuts wind
 4 gas (bloat)
 5 cotton-mouth
 6 constipation or diarrhea
 7 supplement
 8 body builder
 9 energy
 x other

CODE C

RECOMMENDATIONS FOR PRE-GAME MEAL

First Column

0 no response
 1 not in pre-game meal
 2 not day of game
 3 not day of or prior
 to the game
 4 no recommendations
 5 eat for pre-game
 meal
 6 other

Second Column

0 no response
 1 indigestion
 2 fat or grease
 3 cuts wind
 4 gas (bloat)
 5 cotton-mouth
 6 constipation or diarrhea
 7 supplement
 8 body builder
 9 energy
 x other

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