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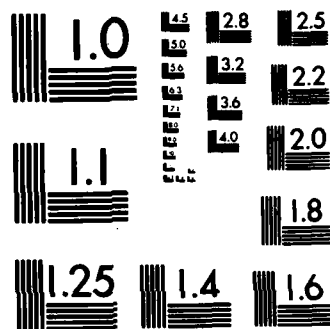
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DECEMBER 1983

NUTRITION RESEARCH

FINAL REPORT

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This report has been reviewed by the Chief Scientist and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.


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NUTRITION RESEARCH

By

MRS. DIANE G. SAITO, M.S., R.D.

October 1983

Nutritionist, Nutrition Management Section
Cadet Food Services Division
USAF Academy, Colorado

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ABSTRACT

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Results of the research are presented and future areas for future nutrition education and menu modification are highlighted.

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I. INTRODUCTION

This research is related to Defense Wide Management and Support of the Importance of Nutrition.

Considerable data indicate that diet is a key factor in the development of heart and circulatory disease including high blood pressure and numerous other pathologic states. Every year the USAF loses the services of pilots who have been highly trained at government expense because of hypertension and other illnesses that are associated with diet.

Since the USAF Academy is the training ground for future pilots and leaders of the United States Air Force, it is imperative for graduates, fulfilling the flying mission of the Air Force, that we evaluate nutritional quality of the diet being offered to cadets at the USAF Academy, as well as cadet eating habits and knowledge of sound health and nutrition practices. Eating habits established at the Academy very likely become life-long habits throughout commissioned service.

The objectives of this research centered in two major areas: Cadet Survey/Nutrition Education and Menu Analysis.

II. CADET SURVEY/NUTRITION EDUCATION

Determine the food preferences of the Cadet Wing in order to establish a nutritionally balanced diet that they will accept and eat.

To survey current cadet eating habits and knowledge of basic nutrition principles in order to determine major areas where nutrition education is needed.

To involve cadets in interesting and pertinent research, utilizing their developed skills and knowledge in physiology, nutrition, psychometrics, statistics and other related disciplines.

Recommend development and administration of appropriate nutrition education and behavior modification materials.

III. MENU ANALYSIS

Analyze the nutritional quality of the menus.

Expose cadets to analysis techniques through manual analysis from handbook tables and also computer aided.

Have cadets interpret and analyze results and recommend changes to Mitchell Hall menus.

IV. BACKGROUND

A. Food Preferences/Nutrition Education

(1) What people eat and why depends upon such individual variables as income and "learned" preferences as well as awareness of and access to information about nutritional values. A recent national survey revealed that up to 15 percent of the population samples consumed inadequate quantities of one or more of the nutrients measured. According to this dietary survey, the American diet is most frequently deficient in Vitamin A and C, Calcium, Iron and Fiber. (1) Some of the deficiencies could be due to habits and personal preferences rather than economic constraints. In general, however, when the term, "malnutrition" is applied to the average middle-class American, it refers to the prevalence of obesity, atherosclerotic heart disease, diabetes, dental caries, and anemia. Except for the latter, these conditions tend to reflect dietary excesses of calories, fats, saturated fats, cholesterol and simple sugars.

(2) From a nutritional point of view, the most significant changes in the American diet in the last 65 years have been:

°The increase of fat consumption. Fat provided 42 percent of our total calories in 1976. In 1910 fat provided only 32 percent of total calories.

°The decrease in complex carbohydrates (basically starch) consumption. Complex carbohydrates accounted for only 21 percent of our total calories in 1976, as contrasted with 37 percent in 1909-1913.

°The increase in sweetener consumption. Refined sugar, corn syrup and other caloric sweeteners supplied 18 percent of calories that sweeteners furnished our grandparents in 1910. (2)

These changes would be only of academic interest if it were not linked to important changes in the public's health. But our "new" diet, in combination with our sedentary life-style, has contributed to what must be considered a national epidemic of obesity, diabetes, heart disease, stroke and tooth decay.

(3) In early 1974, the Superintendent of the USAF Academy became concerned about undesirable weight gains among cadets and recent graduates. A study of the USAF Academy Class of 1973 indicated that members experienced an average weight gain of 12 pounds during their four-year period of training. Furthermore, a similar study of the class of 1974 indicated that 90 percent gained weight while at the Academy with an average weight gain of 23 pounds. (3)

A major concern associated with these statistics is that cadets may continue into commissioned service with many of the eating habits developed while at the Academy. Coupled with reduced physical activity, this situation may lead to obesity, decline in fitness and increased susceptibility to disease among Academy graduates.

Therefore, it is necessary to identify the eating habits that are contributing to this pattern of increased weight among cadets and to select key areas for developing nutrition education materials in order to motivate cadets to change any unhealthy eating patterns.

B. Menu Analysis

(1) Concern by some nutritionists over the effects of excess fats, sugars, cholesterol and salt prompted the Senate Select Committee on Nutrition and Human Needs to issue a set of dietary guidelines based upon available scientific information. Released in 1977, the Senate staff report issued a list of recommended dietary goals for the United States which were revised by the Senate Staff in 1978. (4) The recommended dietary goals are that we:

a. Increase the consumption of complex carbohydrates and naturally occurring sugars from about 28 percent of energy (caloric) intake to 48 percent.

b. Reduce overall fat consumption from approximately 40 to 30 percent of energy intake.

c. Reduce saturated fat consumption to account for about 10 percent of total energy intake, and balance that with poly-unsaturated and mono-unsaturated fats, which would account for about 10 percent of energy intake each.

d. Reduce cholesterol consumption to about 300 milligrams a day.

e. Reduce the consumption of refined sugars by about 45 percent to account for about 10 percent of total energy intake.

f. Limit sodium intake by reducing consumption of salt (including foods high in salt) to about 5 grams or less a day.

g. Avoid overweight by consuming only as many calories as needed for energy expended, and if overweight, decrease caloric intake and increase exercise.

If we follow the U.S. Dietary Goals, the calories in our diets will be consumed in the following proportions:

Complex carbohydrates and "Naturally occurring" sugars	48%
Refined and processed sugars	10%
Total Fat	
Saturated fat	10%
Poly-unsaturated fat	10%
Mono-unsaturated fat	10%
Protein	12%
	<u>100%</u>

(2) In addition to the U.S. Dietary Goals, there is another "yardstick" used by nutritionists to evaluate the nutritional quality and adequacy of the American diet. The official dietary standards of the United States are published as the Recommended Daily Dietary allowances (RDA) by the Food and Nutrition Board of the National Research Council, National Academy of Sciences. The purposes and the applicability of the Recommended Dietary Allowances can best be explained by quoting from the 1974 revised publication. (5)

a. "The Recommended Dietary Allowances are the levels of intake of essential nutrients considered in the judgment of the Food and Nutrition Board, on the basis of available scientific knowledge, to be adequate to meet the known nutritional needs of practically all healthy persons."

b. "...we are well aware that present knowledge of nutritional needs is incomplete. Requirements for many nutrients have not been established. Therefore, to ensure that possibly unrecognized nutritional needs are met, RDA should be provided from as varied a selection of food as possible."

c. "RDA should not be confused with requirements. Differences in the nutrient requirements of individuals that derive from differences in their genetic makeup are ordinarily unknown. Therefore, as there is no way of predicting whose needs are high and whose are low, RDA (except for energy) are estimated to exceed the requirements of most individuals and thereby ensure that the needs of nearly all are met."

d. "In addition to being a source of nutrients, food has psychological and social values that are difficult to quantify...however, as food has no nutritional value unless and until it is eaten, RDA should provide from a selection of foods that are acceptable and palatable."

The RDA are intended to be used as a guide in planning nutritionally adequate diets for groups. They are also used as a reference in the interpretation of the adequacy of nutrient intakes of individuals in dietary surveys. However, any deviation of individual intake from the recommended nutrient allowances should be regarded as significant only in terms of the individual's total health.

(3) Both the U.S. Dietary Goals and the Recommended Dietary Allowances are excellent tools to use to evaluate the nutritional quality of the diet being offered to cadets at Mitchell Hall. (6) The recipes for items served on the menu as well as portion size per cadet have been standardized and as such provide an ideal means of estimating average dietary intake being offered to cadets.

The available dietary intake can be evaluated most accurately by calculating the amounts of nutrients available in each food offered. This can be done by hand or with the use of one of the many computer systems now available. (7)

The nutrient values for food can be obtained from several sources: USDA Handbook No. 8, "Composition of Foods", (8) Handbook No. 456, "Nutritive Value of American Foods", (10) and nutrition labels and food manufacturers' information on the nutrient composition of food.

After recording the nutrient composition for various foods in the diet, the nutrient composition of the total diet can be determined. These figures can then be compared with the RDA and U.S. Dietary Goals to evaluate the quality of the total diet being offered and to determine menu modifications that may be necessary to comply with the standards.

V. SURVEY AND MENU ANALYSIS

A. A survey was developed as a joint effort between the Behavior Science Department and the Cadet Food Services Division to provide detailed information about the eating habits and food preferences of the Cadet Wing. It also provided a measure of cadet knowledge concerning the relationship between good nutrition and optimum health. There was no current information about the nutrition knowledge of the Cadet Wing and, therefore, particular nutrition education requirements were unknown.

A survey was developed by a cadet as an independent research project and administered to 1200 cadets in their squadrons during squadron training time. First Class Cadets were not included in the sample since it was felt that Underclassmen would be more highly motivated to thoughtfully complete the questionnaire in order to influence the menu patterns at the Cadet Dining Hall.

Results from the survey were tabulated by computer using a sophisticated Behavior Science software package. A long-term purpose of the survey was to discover ways of enhancing the nutritional quality of menus while satisfying cadet food preferences.

B. In spite of the fact that the USAF Academy Food Services Division feeds 4500 cadets during their four years of training to become Air Force Officers, there never has been a thorough nutritional evaluation of the standard dining hall menu based upon current scientific knowledge in nutrition. This evaluation is critical to ensure that the Air Force Academy is providing a sound model of optimum nutrition for the Cadet Wing.

To accomplish this objective, a First Class Cadet in the Biology Department, under the direction of the Cadet Food Services Division Nutritionist and a faculty advisor from the Biology Department, was taught the principles necessary to analyze the nutritional content of a menu, using reference tables, books and other appropriate tools.

The Nutritionist provided a representative three week menu plan served during the month of September 1981. The foods in the menu were coded and quantified so they could be analyzed using the Nutri-fit software package available in the Nutrition Department of Colorado State University. The program evaluated the nutritional adequacy of the meals according to the individual dietary requirements of a male and female cadet.

The characteristics given in Table 1 were decided upon for the reference male and female cadet profile.

TABLE 1

Reference Male and Female Cadet Profiles

FEMALE CADET	MALE CADET
22 years old	22 years old
Not pregnant	-----
Not lactating	-----
122 lbs. current weight	165 lbs. current weight
8 hours rest activity	8 hours rest activity
7 hours light activity	5 hours light activity
7 hours moderate activity	8 hours moderate activity
1 hour very active	2 hours very active
1 hour extremely active	1 hour extremely active

The Nutri-fit computer analysis program was able to evaluate the nutrient composition of the sample menu and indicate whether that menu provided the recommended dietary allowances for the reference male and female cadets.

VI. RESULTS AND RECOMMENDATIONS

The computer analysis provided some very interesting information. The typical daily menu served in the Cadet Dining Hall provided in excess of 130 percent of the Recommended Dietary Allowances for Protein, Iron, Vitamin A, Vitamin C, Thamin, Riboflavin, Niacin and Calcium.

However, the daily calories shown in Table 2 provided by the menus (about 4,000) were about 200 calories fewer than recommended for the reference male. This seemed not to be a problem since the cadet who coded the menus did not consider that 20 percent more food is placed on each table for seconds, or that the average size servings used in the computer program (eg. 4 oz. of meat) are smaller than those served in the Cadet Dining Hall (eg. 6 oz. of meat). These two variables more than make up for the 200 additional calories needed. The other source for additional calories that was not taken into account was food eaten between meals from vending machines, the Cadet Store, etc...

The calories provided by the standard dining hall did present a problem for the reference female cadet whose daily caloric requirement was exceeded by 47 percent. This explains why so many cadets who gain weight at the USAF Academy, and have problems exceeding the Air Force maximum allowable weight, are women.

TABLE 2

Analysis of Calories Offered By Mitchell Hall

WEEK #1	FAT	CH ₂ O	PROTEIN	ALCOHOL
CALORIES	1344	1928	614	0
% OF CAL	34	49	15	0
U.S. DIETARY %	1376	1952	619	0
WEEK #2				
CALORIES	1376	1952	619	0
% OF CAL	34	49	15	0
U.S. DIETARY %	30	58	12	0
WEEK #3				
CALORIES	1476	1889	645	0
% OF CAL	37	47	16	0
U.S. DIETARY %	30	58	12	0

In fact, the survey results indicated that 85% of the cadets surveyed who indicated that they were above the maximum Air Force weight allowance (3% of sample) were women. And of the 37% of the sample who indicated that they were above the USAFA ideal weight standard, 90% were women.

Perhaps this explains why 82% of the sample said they felt that USAFA should offer a program that would provide more information on the principles of weight control.

The menu analysis results provided another interesting observation that was reinforced by the survey results. The poly-unsaturated to saturated fat ratio (P/S ratio) of the menus shown in Table 3 indicated that considerably greater amounts of saturated versus unsaturated fats are being served in the Cadet Dining Hall than is recommended for optimum health.

TABLE 3

P/S Ratio

WEEK #1	WEEK #2	WEEK #3
13.9/53.5	11.2/57.9	20.3/59.3
P/S=.3	P.S=.2	P/S=.3

*Recommendation is that P/S ratio should be 1.0 or greater.

Current scientific evidence strongly indicate that high saturated fat intakes are a contributing factor in the development of atherosclerosis. It is also well documented that eating a higher proportion of unsaturated fats leads to a lowering of blood cholesterol levels that contributed to heart disease. This unhealthy P/S ratio is readily explained when one examines the food items that the cadets surveyed indicated were their favorites (i.e. 80% like extremely): French Dip Sandwiches, steaks, hamburgers, meatball sandwiches, braised sirloin tip etc. Beef and beef products are a major source of saturated fat in the American diet and in the Cadet Dining Hall menu. The complete survey and significant results are given in Appendix A.

However, many cadets (40-65%) indicated that they would like to have vegetable salads, fresh fruits, fruit salads, canned fruits, turkey and fruit yogurt served more frequently. These foods are low in overall fat and turkey is a good substitute for beef as an entree item. Introduction of a fresh salad bar before the entree line in a buffet would encourage cadets to reduce the portion size of the beef entree while eating more low fat, low calorie, high fiber fresh fruits and vegetables.

Another interesting observation is that 47% of the cadets surveyed indicated that they would like to have whole grain breads served more frequently. Whereas only 11% indicated that they prefer white bread. The reduced fiber content of the American diet of the 1980's is a concern to many nutritionists whose research indicates an association between low fiber diets and several diseases such as cancer, heart disease and diverticulitis. The Nutri-fit program did not analyse the fiber content of the Cadet Dining Hall menu yet, since the menu reflects past cadet preferences, one would suspect that an increase in fresh fruits, vegetables, and whole grain products including bread and cereals would enhance the overall nutritional quality of the menu.

In the section of the survey that measured general nutrition knowledge of the cadets surveyed the overall score out of a possible 100% was 50%. Only 38% know that fatty deposits in blood vessels are a forerunner of coronary heart disease. Although whole grain breads and cereals are excellent sources of dietary fiber, enriched breads and cereals are not. Sixty-nine percent of those surveyed did not know the difference. Seventy-one percent of the cadets did not know that high intakes of beef and saturated fats are linked to the development of colon cancer in the United States. And forty percent of the cadets still falsely believe that steak is the best source of protein for athletes. Finally, a whopping 73% of the cadets falsely believed that grapefruit contains an enzyme that aids weight reduction by burning fat in the body.

Clearly there is a need for more nutrition education among the Cadet Wing. The cadets who were surveyed indicated an interest in specific areas of nutrition education as follows:

81%	Nurtition and Athletic Performance
71%	Nutrition and Coronary Heart Disease
68%	Weight Control
67%	Nutrition and Cancer
61%	Sugar and Fiber in the Diet
46%	Vegetarianism, Health Foods and Fad Diets.

As a result of the survey of the Cadet Wing and nutritional analysis of a typical Cadet Dining Hall menu, the Cadet Food Services Division can act to modify the foods offered at the Cadet Dining Hall to improve the nutritional value in ways that will be acceptable to cadets. Furthermore, nutrition education programs can be developed that are of interest to cadets and that will lead to healthier eating patterns in the future.

VII. ACKNOWLEDGEMENT

This report documents work performed as part of a CWLH project under the direction of Mrs. Diane Saito, R. D. (CWLH-SN) and Capt. Henry Tillinghast (FDB). The principle author is the nutritionist for the Cadet Food Services Division and Capt. Tillinghast is an instructor in the Biology Department at the United States Air Force Academy.

The author wishes to thank Lt Col Val Tierman for his helpful suggestions and analysis of the data using a social science software package.

VIII.

BIBLIOGRAPHY

- (1) Windham, C. T., B. W. Wyse, R. L. Hurst and R. G. Hansen: "Consistency of Nutrient Consumption Patterns in the United States". J. Am Dietet A. 78: 587, 1981
- (2) Brewster, Letitia and M. Jacobsen. 1978. The Changing American Diet. Center for Science in the Public Interest Washington, D. C.
- (3) Private Information from Colonel O. Sampson, Head DFB, USAF Academy, 1981.
- (4) US Senate Select Committee on Nutrition and Human Needs, "Dietary Goals for the United States", Second Edition Government Printing Office, Washington, D. C. 1977
- (5) The Recommended Dietary Allowance. 8th Edition, Food and Nutrition Board. Washington, D. C. National Academy of Sciences, 1974
- (6) Peterkin, B. B., P. C. Patterson, A. J. Blum, and R. L. Kerr: Changes in Dietary Patterns: One Approach to Meeting Standards. J. Am Dietet A. 78:453, 1981.
- (7) Witschi, J., H. Knowaloff, S. Bloom and W. Slack: Analysis of Dietary Data, An Interactive Computer Method for Storage and Retrieval. J. Am Dietet A. 78:609, 1981.
- (8) Watt, B. K. and A. L. Merrill: Composition of Foods. Agricultural Handbook No. 8, Agricultural Research Service, Washington, D. C. U. S. Government Printing Office, 1963.
- (9) Adams, C. F.: Nutritive Value of American Foods, Agricultural Handbook No. 456, Agricultural Research Service, Washington D. C., 1975.
- (10) Church, C. F. and H. N. Church: Food Values of Portions Commonly Used. 12 Edition. Philadelphia, PA. J. B. Lippincott Company, 1975

IX.

APPENDICIES

APPENDIX A

Cadet Food Preference and Nutrition Knowledge Survey



DEPARTMENT OF THE AIR FORCE

THE AIR FORCE CADET WING

USAF ACADEMY, COLORADO 80840

RESULTS

01 APR 1982

REPLY TO
ATTN: CW

SUBJECT: Cadet Food Preference and Nutrition Knowledge Survey

TO: CWD CWD1-4 CWDS-40

1. The Cadet Food Services Division, in coordination with the Department of Behavioral Science and Leadership, has assembled an extension food survey. This two part effort, to examine cadet food preferences and overall nutrition knowledge, will provide valuable information to improve services in the Cadet Food Services Division and to establish direction for the proposed nutrition education program under the guidance of the Dietitian.

2. I strongly urge that you personally administer this valuable tool and solicit for the best possible cadet results. We've made great strides within the last year through the addition of the Dietitian, as evidenced by her efforts with the weight control program. Let's continue our nutrition management thrust and expedite the completion of this survey.

ROBERT D. BECKEL
Brigadier General, USAF
Commandant of Cadets

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CADET FOOD SERVICES
FOOD PREFERENCE
NUTRITION KNOWLEDGE SURVEY
SPRING 1982

This survey is designed to provide detailed information about the eating habits and food preferences of the Cadet Wing as well as an overview of cadet knowledge of the relationship between good nutrition and optimum health.

The information from this survey will be used to improve services within the Cadet Food Services Division and to determine the focus of a proposed nutrition education program for the Cadet Wing. We realize that this is a rather extensive questionnaire and appreciate your taking the time to complete it. Your frank candid answers will contribute greatly to the success of this project. No one will know your individual identity as we are interested in group results. Please read the Privacy Act Statement on the next page. Read the INSTRUCTIONS carefully before filling out the survey.

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, AIR FORCE PRIVACY ACT PROGRAM, the following information about this survey is provided:

- A. Principal Program. This survey is being conducted to gather information on cadet food preferences, eating habits, and knowledge of nutrition.
- B. Routine Use. Survey data will be analyzed by personnel at the U.S.A.F. Academy Cadet Food Services Division and the Department of Behavioral Sciences. Summary group results will be used to determine future menus at Mitchell Hall and to determine possible areas for nutrition education.
- C. Participation in this survey is entirely voluntary.
- D. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

INSTRUCTIONS

Use General Answer Sheet Type A to record your responses. Complete the information at the side according to the instructions below:

SEX GRID: Blacken the appropriate bubble for either Male or Female.

DATE OF BIRTH: Enter the month, day, and year of your birth at the bottom of the respective columns and blacken the corresponding bubbles.

CADET CONTROL NO. GRID: Enter your squadron number in the first two columns (be sure to use two digits to express your squadron, 01, 02 etc.).

NUMERIC GRID 1: Enter your height in inches to the nearest inch in the first two columns.

NUMERIC GRID 2: Enter your present weight to the nearest pound in the first three columns.

Blacken the appropriate bubble in the column above each number.

Use a #2 pencil for your answers. Please do not write on this questionnaire booklet. Answer each item carefully but do not spend too much time on any one item. Be sure to answer each question.

1. What is your ethnic/racial background?

- 34.8% A. White/Caucasian
- 5.2% B. Black/Negro/Afro-American
- 4.8% C. Asian-American/Oriental
- 2.5% D. Mexican-American/Chicano
- 2.8% E. Other

2. What is your class year?

- 1% A. 1982
- 27.6% B. 1983
- 51.5% C. 1984
- 59.8% D. 1985

3. In what region of the country did you live the longest before you entered the USAF Academy?

- 20.5% A. New England/Mid-Atlantic (ME, NH, VT, MA, RI, CT, NY, NJ, PA)
- 16.6% B. South Atlantic (DE, MD, DC, VA, WV, NC, SC, GA, FL)
- 35.4% C. North and South Central (OH, IN, IL, MN, MO, WI, IA, MT, ND, SD, NE, KS, KY, TN, AL, MS, AR, LA, OK, TX)
- 24.6% D. Mountain/Pacific (MT, ID, WY, CO, NM, AZ, UT, NV, CA, WA, OR, AK, HI)
- 3.2% E. Other Territories, Possessions, or Countries

4. Where did you spend most of the time before you entered in USAF Academy?

- 12.5% A. In a town with less than 2,500 people
- 38.1% B. In a town or small city with more than 2,500 but less than 25,000 people
- 22.4% C. In a large city with more than 100,000 but less than 1,000,000 people
- 68.0% D. In a very large city with over 1,000,000 people
- 20.2% E. In a suburb of a large or very large city

5. Are you a member of a Varsity sport?

- 20.5% A. Yes
- 77.6% B. No

6. If your answer is Yes, please indicate which sport:

- 57.4% A. Football/Basketball
- 85.0% B. Wrestling/Hockey
- 5.2% C. Swimming/Gymnastics
- 7.9% D. Cross Country/Track
- 21.3% E. Other

Please refer to the Height/Weight standards on next page to answer the next 3 questions.

WEIGHT STANDARDS

MALES

<u>*Height In Inches</u>	<u>Minimum</u>	<u>Ideal</u>	<u>Maximum</u>
60	100	122	153
61	102	124	155
62	103	125	158
63	104	128	160
64	105	131	164
65	106	135	169
66	107	139	174
67	111	143	179
68	115	147	184
69	119	151	189
70	123	155	194
71	127	159	199
72	131	164	205
73	135	169	211
74	139	174	218
75	143	179	224
76	147	184	230
77	151	189	236
78	153	194	242
79	157	199	248
80	161	204	254

FEMALES

58	87	100	126
59	89	101	128
60	92	103	130
61	95	105	132
62	97	107	134
63	100	109	136
64	103	111	139
65	106	114	144
66	108	118	148
67	111	122	152
68	114	125	156
69	117	128	161
70	119	132	165
71	122	135	169
72	125	139	174
73	128	144	179
74	130	148	185
75	133	152	190
76	136	156	196
77	139	161	201
78	141	165	206
79	144	169	211
80	147	173	216

* Height is without shoes.

7. Were you within the minimum and maximum USAFA weight standards when you entered?

- 95.5% A. Yes
- 1.7% B. No, I was below the minimum
- 1.8% C. No, I was above the maximum
- .9% D. Don't Know

8. Are you within the minimum and maximum weight standards now?

- 94.7% A. Yes
- 2.3% B. No, I am below the minimum
- 2.1% C. No, I am above the maximum
- .5% D. Don't Know

9. Are you within 5 pounds of your USAFA ideal weight standard?

- 40.0% A. Yes
- 36.7% B. No, I am more than 5 pounds above it
- 20.3% C. No, I am more than 5 pounds below it
- 2.1% D. Don't know

10. How does your present weight compare with your weight when you entered the USAFA?

- 8.4% A. 11 or more pounds less
- 10.9% B. 6-10 pounds less
- 46.0% C. Within 5 pounds of entry weight
- 23.6% D. 6-10 pounds greater
- 11.27% E. 11 or more pounds greater

11. How much should the USAFA emphasize weight control?

- 53.3% A. Great deal
- 31.2% B. Moderate
- 11.6% C. Somewhat
- 2.1% D. Not at all

12. How "Calorie conscious" are you?

- 62.5% A. I don't pay attention to how many calories I eat
- 14.7% B. I really don't know much about the calorie content of food although I would like to
- 17.6% C. I try to keep a rough count of calories in the food I eat
- 3% D. I closely watch and control the number of calories I eat
- 2.3% E. Don't know/not sure

13. Should the USAFA offer a program that would provide more information on Principles of Weight Control?

- 17.7% A. Yes, I would join
- 63.6% B. Yes, but I personally have no need to join
- 10.8% C. No, there is no need for it
- 7.3% D. Don't know

In 1977, the Federal Government published dietary guidelines for the American public. These guidelines were based on current scientific evidence concerning the relationship between dietary intake and optimum health. They are suggested for healthy individuals. The guidelines are:

EAT A VARIETY OF FOODS
AVOID TOO MUCH FAT, SATURATED FAT, AND CHOLESTEROL
EAT FOODS WITH ADEQUATE STARCH AND FIBER
AVOID TOO MUCH SUGAR
AVOID TOO MUCH SODIUM
IF YOU DRINK ALCOHOL, DO SO IN MODERATION

14. Indicate your agreement with the statement:

It is important that the Cadet Dining Hall incorporate these guidelines into planning menus for the Cadet Wing.

95.4%	51.6% A. Strongly agree	4.4%	37.7% C. Disagree
	43.8% B. Agree		.7% D. Strongly Disagree

15. How well do your current eating habits follow these guidelines?

47.0%	A. I understand these guidelines for good nutrition and follow them
21.3%	B. I violate three or more of them
26.1%	C. I am not sure whether I follow them or not - need more information
5.4%	D. I don't think they are important for me

16. Should the USAFA offer a program that would provide information on principles of good nutrition?

74.5%	26.7% A. Yes, I would join
15.6%	47.8% B. Yes, But I personally have no need to join
	15.6% C. No, there is no need for it
	9.4% D. Don't know

HOW'S YOUR NUTRITIONAL "IQ"?

Please answer the following questions:

1. The protein needs of a young adult athlete can best be met by:
 - A. 1 tablespoon of Brewer's yeast twice daily
 - B. Supplements of liquid protein
 - C. A daily allowance of 2 grams protein per kilogram of body weight
 - 31% (D.) A daily allowance of 1 gram of protein per kilogram of body weight

2. A common finding in young adults which could be interpreted as a forerunner of coronary heart disease is:
 - A. Increased serum cholestrol
 - 38% (B.) Fatty deposits in the aorta
 - C. Hypertension
 - D. Low blood sugar

3. The most important factor in the development of adolescent acne is thought to be:
 - A. Improper skin care
 - B. Lack of Vitamin A in the diet
 - 31% (C.) Increased androgen production
 - D. An excess of chocolate and fatty foods

4. Grapefruit contains an enzyme that burns fat in the body.
 - A. True
 - 27% (B.) False
 - C. Don't know/not sure

5. Brown or dark breads are always whole grain products.
 - A. True
 - 76% (B.) False
 - C. Don't know/not sure

6. Enriched breads and cereals are a good source of fiber.
 - A. True
 - 31% (B.) False
 - C. Don't know/not sure

7. Nuts and seeds are good low calorie snack items.
 - A. True
 - 42% (B.) False
 - C. Don't know/not sure

8. Cancer has been related to the use of refined sugar and dietary fiber deficiency.

- 41% (A.) True
B. False
C. Don't know/not sure

9. It is generally accepted that diet, particularly a high intake of dietary fat and beef is a major factor in the development of colon cancer.

- 29% (A.) True
B. False
C. Don't know/not sure

10. Protein foods are great for promoting "power-packed" energy.

- A. True
55% (B.) False
C. Don't know/not sure

11. Drinking water during practice will upset an athlete's stomach. Besides, drinking water has a tendency to slow you down.

- A. True
75% (B.) False
C. Don't know/not sure

12. Steak is the best source of protein for athletes.

- A. True
61% (B.) False
C. Don't know/not sure

13. "Organic" foods are higher in nutrient content than foods grown in chemically fertilized soil.

- A. True
59% (B.) False
C. Don't know/not sure

14. As much protein as desired may be consumed without contributing to weight gain.

- A. True
70% (B.) False
C. Don't know/not sure

15. Skipping breakfast and eating only one meal a day is the best way to lose weight and keep it off.

- A. True
87% (B.) False
C. Don't know/not sure

Food selection is simplified by combining into groups, those foods that are comparable enough in calories, protein, minerals, and vitamins to be interchangeable. An appropriate and varied diet is achieved by selecting foods from each group.

The following chart shows the minimum daily food selections that will provide all the necessary protein, minerals and vitamins for a young active adult. Please refer to this chart when answering questions 16, 17 and 18.

MINIMUM DAILY FOOD SELECTIONS
(Approx 2,500 cal)

<u>FOOD GROUP</u>	<u>Total Servings Per Day</u>
MILK	4 Cups
MEAT (Fish, Poultry, Cheese or Eggs)	5 Ounces of edible meat without bone or fat
DARK GREEN OR DEEP YELLOW VEGETABLES	1 Serving (½ cup)
CITRUS FRUITS	1 Serving (½ cup)
OTHER FRUITS AND VEGETABLES	2 Servings (1 cup)
BREAD (Cereal, Rice, Potatoes, Baked Beans, Muffins, Chips, Grain Products)	13 Servings
FATS (Butter, Margarine or Other Fat Spreads including that used in cooking)	10 Servings (10 teaspoons)

16. Considering the minimum daily food selection chart, how often would you say your diet provides you with proper nutrition?

9.5% A. Always	13.7% (48% D. Seldom
52.2% B. Usually		3.7% E. Practically Never
24.5% C. Occasionally		

17. Which of the following food groups are not including often enough in your daily diet?

3.1% A. Milk	48% D. Citrus Fruits
6% B. Meat	10.8% E. None of these
23.6% C. Dark green or deep yellow vegetables	

18. Which of the following food groups are not including often enough in your daily diet?

44% A. Other fruits and vegetables	8.7% C. Fats
13.6% B. Bread	32.3% D. None of these

Please indicate your interest in receiving more information about the nutrition topics indicated in questions 19 through 24.

19. Weight Control

68% (18.7% A. Fairly interested
23.3% B. Moderately interested
16.1% C. Very interested
40.9% D. Not interested
E. Don't know

20. Diet, Nutrition and Athletic Performance

81% (20.9% A. Fairly interested
29.3% B. Moderately interested
31.3% C. Very interested
17.5% D. Not interested
1.2% E. Don't know

21. Diet, Nutrition and Coronary Heart Disease

71% (22.0% A. Fairly interested
28.0% B. Moderately interested
20.0% C. Very interested
26.5% D. Not interested
2.5% E. Don't know

22. Nutritional Aspects of Vegetarianism, Health Foods and Fad Diets

46% (14.1% A. Fairly interested
19.3% B. Moderately interested
12.7% C. Very interested
52.0% D. Not interested
2% E. Don't know

23. Diet, Nutrition and Cancer

67% (21.2% A. Fairly interested
28.8% B. Moderately interested
16.3% C. Very interested
30.8% D. Not interested
2.2% E. Don't know

24. Sugar and Fiber in the Diet: Current Controversies

61% (20.2% A. Fairly interested
26.2% B. Moderately interested
14.6% C. Very interested
36.3% D. Not interested
2.7% E. Don't know

Items 25 - 43 concern the frequency and variety of foods that are served in the Cadet Dining Hall. How could the Cadet Dining Hall alter its menu to serve meals more satisfying to you? Circle the letters that express your preferences for frequency and variety.

	FREQUENCY		VARIETY		
	A More Frequently	B Less Frequently	C Frequency OK	D Greater Variety	E Variety OK
25. BEEF	A 39%	B 10.3%	C 47.4%	D 39.8%	E 16%
26. CHICKEN	A 21.8%	B 28.5%	C 47.5%	D 32%	E 45.1%
27. FISH	A 30.0%	B 31.1%	C 38.0%	D 43.8%	E 34%
28. PORK	A 13%	B 47.8%	C 36.3%	D 32.6%	E 43.8%
29. TURKEY	A 40.2%	B 15.9%	C 42.2%	D 32.5%	E 44.0%
30. VEGETABLES	A 33%	B 7.6%	C 54.9%	D 43.8%	E 35.7%
31. RICE	A 33.8%	B 18.8%	C 46.0%	D 30.6%	E 45.9%
32. POTATOES	A 14.3%	B 34.3%	C 47.3%	D 31.7%	E 45.8%
33. WHOLE GRAIN BREADS	A 46.6%	B 10.6%	C 10.6%	D 40.7%	E 23.7%
34. VEGETABLE SALADS	A 38.4%	B 18.4%	C 41.3%	D 32.1%	E 20.5%
35. FRUIT SALADS	A 60.2%	B 11.1%	C 26.6%	D 39.1%	E 37.4%
36. CANNED FRUIT	A 39.7%	B 22.2%	C 36.3%	D 35.9%	E 40.1%
37. FRESH FRUIT	A 65.0%	B 6.7%	C 27.0%	D 48.7%	E 28.1%

	<u>FREQUENCY</u>			<u>VARIETY</u>	
	<u>More Frequently</u>	<u>Less Frequently</u>	<u>Frequency OK</u>	<u>Greater Variety</u>	<u>Variety OK</u>
38. BAKED DESSERTS	A 40.1%	B 17.7%	C 41.8%	D 37.9%	E 38.5%
39. BEVERAGES	A 32.9%	B 6.4%	C 54.5%	D 52.6%	E 48.2%
40. CASSEROLES	A 42.7%	B 11.9%	C 43.3%	D 36.5%	E 41.5%
41. SOUPS	A 42.2%	B 20.8%	C 34.3%	D 44.3%	E 32.3%
42. PACKAGED DESSERTS (Twinkies, Grandma's Cookies)	A 49.3%	B 21.4%	C 27.0%	D 43.6%	E 33.0%
43. FRUIT YOGURT	A 64.4%	B 15.5%	C 15.8%	D 39.0%	E 35.0%

How frequently should the ethnic/specialty foods listed in Items 44-51 be served?

	<u>MORE FREQUENTLY</u>		<u>LESS FREQUENTLY</u>	
	<u>FREQUENCY</u>	<u>OK</u>	<u>FREQUENCY</u>	<u>OK</u>
44. CHINESE/JAPANESE	A 50.4%	B 21.7%	C 26.9%	C 26.9%
45. FRENCH	A 51.8%	B 12.5%	C 34.7%	C 34.7%
46. ITALIAN	A 58.6%	B 10.1%	C 30.5%	C 30.5%
47. VEGETARIAN/NATURAL FOODS	A 29.6%	B 43.2%	C 26.4%	C 26.4%
48. GERMAN/POLISH	A 46.5%	B 22.7%	C 30.0%	C 30.0%
49. MEXICAN/SPANISH	A 46.4%	B 27.8%	C 25.1%	C 25.1%
50. GREEK	A 39.3%	B 27.9%	C 32.1%	C 32.1%
51. SEAFOOD	A 45.7%	B 24.7%	C 26.5%	C 26.5%

For Items 52 - 233 please indicate how you feel about each food as it is served in the Cadet Dining Hall.

	<u>DISLIKE EXTREMELY</u>	<u>DISLIKE MODERATELY</u>	<u>DON'T KNOW</u>	<u>LIKE MODERATELY</u>	<u>LIKE EXTREMELY</u>
52. MEATBALL SANDWICHES W/ ITALIAN SAUCE	A 5.2%	17.7% B 12.5%	C 7.2%	D 44.5%	75.2% E 30.0%
53. DO-IT-YOURSELF POORBOY	A 5.2%	15.6% B 10.4%	C 15.5%	D 43.6%	68.9% E 25%
54. CHAROSET	A 5.3%	11.2% B 5.9%	C 77.9%	D 8.1%	10.9% E 2.%
55. SHRIMP FRIED RICE	A 11.9%	30.2% B 18.3%	C 16.6%	D 34.2%	53.3% E 19%
56. VEAL PARMESAN (PORTIONED)	A 18.5%	40.5% B 22.0%	C 9.3%	D 36.7%	50.2% E 13%
57. PUDDING POPS	A 5.7%	18.2% B 12.5%	C 9.9%	D 30.6%	71.7% E 41%
58. VEAL CORDON BLEU	A 15.1%	27.7% B 12.6%	C 12.1%	D 32.6%	60.3% E 27%
59. BAKED BREADED PORK CHOPS	A 23.8%	43.6% B 24.8%	C 9.3%	D 32.8%	43% E 9%
60. FROZEN YOGURT POPS	A 14.6%	27.4% B 12.8%	C 11.2%	D 29.8%	61.4% E 31%
61. GRILLED PORK CHOPS	A 21.5%	45.7% B 23.9%	C 11.5%	D 31.0%	42.8% E 1%
62. STAFF TOWER SANDWICHES	A 3.0%	8.3% B 5.3%	C 6.1%	D 45.5%	85.6% E 40%
63. FRUIT SALAD	A 3.7%	14.4% B 10.7%	C 10.9%	D 37.5%	74.6% E 37%
64. CLUB HOUSE SANDWICHES	A 3.5%	9.2% B 5.7%	C 14.6%	D 41.8%	76.2% E 34.4
65. STUFFED CABBAGE ROLLS	A 32.2%	52% B 19.8%	C 15.1%	D 20.2%	29.9% E 9.7%
66. TRAIL MIX (DRIED FRUITS/NUTS)	A 16.7%	36.9% B 20.2%	C 11.1%	D 29.8%	52% E 22.2%
67. BAR B Q SPARERIBS	A 7.6%	21.3% B 13.7%	C 38.7%	D 11.7%	66.9% E 28%
68. VEAL BREADED, CUTLET	A 20.6%	39.5% B 18.9%	C 13.6%	D 34.5%	46.9% E 12.4%
69. GRAPEFRUIT & ORANGE SALAD W/COCONUT	A 13.1%	35.2% B 22.1%	C 13.7%	D 29.9%	51% E 21.1
70. NATURAL FRUIT BARS	A 10.8%	27% B 16.4%	C 10.4%	D 36.1%	E 26.3 65.7%
71. PIZZA	A 10.0%	23.4% B 17.2%	C 7.2%	D 39.9%	E 25% 52.8%
72. MANDARIN ORANGE SALAD, WALDORF	A 8.8%	46.1% B 14.6%	C 23.7%	D 29.9%	E 22.9 36.4%
73. GRILLED BREADED PORK CUTLETS	A 21.6%	27.5% B 24.5%	C 17.6%	D 29.5%	E 6.9 50%
74. WEINER SHCNITZEL	A 10.1%	45.6% B 17.4%	C 22.6%	D 31.9%	E 18.1% 40.7%
75. PEANUT BUTTER PIE	A 25.7%	B 19.9%	C 13.8%	D 25.4%	E 15.3

	DISLIKE EXTREMELY	DISLIKE MODERATELY	DON'T KNOW	LIKE MODERATELY	LIKE EXTREMELY
76. PEPPER STEAK	A 5.6%	B 13.5%	C 15.7%	D 42.7%	E 22.5%
77. STUFFED PORK CHOPS	A 21.3%	B 18.6%	C 26.0%	D 25.9%	E 8.3%
78. BREAST OF CHICKEN BERCY	A 5.3%	B 9.8%	C 34.7%	D 39.6%	E 15.6%
79. SAUERBRATEN	A 10.7%	B 14.7%	C 39.0%	D 24.3%	E 11.3%
80. BEEF-A-RONI	A 9.5%	B 21.2%	C 17.7%	D 38.5%	E 13.1%
81. BAKED ITALIAN LASAGNA	A 4.0%	B 5.5%	C 6.9%	D 32.8%	E 50.0%
82. CHICKEN CACCIATORE	A 7.1%	B 10.9%	C 28.9%	D 35.7%	E 17.5%
83. LETTUCE & TOMATO SALAD W/GREEN PEPPERS	A 13.1%	B 18.4%	C 12.1%	D 36.7%	E 25.6%
84. COTTAGE CHEESE JUBILEE	A 21.6%	B 18.6%	C 16.3%	D 28.4%	E 15.6%
85. ROAST TURKEY	A 3.4%	B 11.0%	C 10.00%	D 43.9%	E 31.7%
86. PINA COLADA CAKE	A 9.5%	B 18.7%	C 18.2%	D 37.5%	E 16.1%
87. TURKEY ALA KING	A 5.5%	B 14.2%	C 16.9%	D 40.9%	E 22.3%
88. PEAR & COTTAGE CHEESE	A 16.4%	B 16.8%	C 10.4%	D 34.9%	E 26.4%
89. MEXICAN COLE SLAW	A 28.3%	B 24.9%	C 24.1%	D 17.1%	E 5.5%
90. COLE SLAW	A 21.6%	B 24.0%	C 12.6%	D 32.5%	E 2.3%
91. CORN BREAD	A 12.0%	B 24.4%	C 14.5%	D 34.4%	E 14.7%
92. HAMBURGERS & CHEESEBURGERS	A 2.2%	B 5.4%	C 6.3%	D 39.9%	E 40.3%
93. CAPE COD SANDWICHES	A 13.7%	B 14.0%	C 10.4%	D 37.9%	E 23.5%
94. MANHATTAN CLAM CHOWDER	A 17.3%	B 17.2%	C 12.5%	D 26.3%	E 26.8%
95. POTATOES, OVEN BROWN	A 8.1%	B 17.9%	C 14.2%	D 44.3%	E 15.5%
96. BUTTERED EGG NOODLES	A 6.3%	B 12.6%	C 14.4%	D 39.7%	E 27.0%
97. CHICKEN & TURKEY CASSEROLE	A 7.9%	B 11.5%	C 21.4%	D 38.3%	E 20.8%
98. BEET & ONION SALAD	A 43.9%	B 25.0%	C 12.3%	D 33.2%	E 29.4%
99. ROAST STUFFED CORNISH GAME HEN	A 8.4%	B 9.3%	C 19.7%	D 33.2%	E 29.4%
100. MANDARIN ORANGE SALAD	A 16.4%	B 13.8%	C 18.2%	D 32.0%	E 29.7%
101. TOSSED GREEN SALAD	A 4.2%	B 6.4%	C 8.7%	D 38.7%	E 42.0%
102. MOLDED SPRING VEGETABLE SALAD	A 10.3%	B 19.1%	C 31.2%	D 23.2%	E 15.5%

	<u>DISLIKE</u> <u>EXTREMELY</u>	<u>DISLIKE</u> <u>MODERATELY</u>	<u>DON'T</u> <u>KNOW</u>	<u>LIKE</u> <u>MODERATELY</u>	<u>LIKE</u> <u>EXTREMELY</u>
103. BAKED HALIBUT STEAK W/PARSLEY BUTTER SAUCE	A 20.1%	B 14.9%	C 17.0%	D 21.9%	E 20.1%
104. FRESH GARDEN SALAD	A 3.5%	B 6.4%	C 11.8%	D 41.6%	E 36.3%
105. DIPLOMAT SALAD (WALDORF)	A 6.7%	B 11.3%	C 41.0%	D 25.5%	E 15.6%
106. BROILED KINGBURGERS	A 2.3%	B 4.3%	C 28.0%	D 35.5%	E 29.9%
107. CAESARS SALAD	A 4.0%	B 7.4%	C 24.9%	D 34.4%	E 29.3%
108. BING CHERRY & PEAR SALAD	A 8.6%	B 10.7%	C 24.6%	D 32.5%	E 23.7%
109. SEAFOOD SALAD	A 15.1%	B 13.9%	C 20.9%	D 25.6%	E 24.5%
110. CLUB SALAD WITH HAM	A 8.0%	B 13.8%	C 19.3%	D 31.8%	E 27.0%
111. PARISIAN POTATOES	A 5.4%	B 16.1%	C 38.8%	D 29.4%	E 7.3%
112. KIDNEY BEAN SALAD	A 31.8%	B 29.2%	C 13.3%	D 18.7%	E 6.9%
113. POTATO SALAD	A 14.1%	B 16.7%	C 11.4%	D 40.9%	E 16.8%
114. CALIFORNIA AMBROSIA SALAD	A 6.9%	B 8.6%	C 54.9%	D 18.4%	E 11.2%
115. PERFECTION SALAD	A 7.4%	B 7.5%	C 63.5%	D 14.0%	E 7.5%
116. WILLIAM TELL COLE SLAW	A 18.0%	B 16.6%	C 49.9%	D 10.5%	E 5.0%
117. BAKED STUFFED MEATLOAF	A 17.8%	B 16.5%	C 12.6%	D 38.4%	E 14.7%
118. SMOTHER STEAK W/MUSHROOMS AND ONIONS	A 4.9%	B 6.7%	C 8.1%	D 32.6%	E 47.7%
119. GRILLED STEAK SANDWICH (RIBEYE)	A 2.2%	B 4.3%	C 6.2%	D 25.3%	E 61.5%
120. MARYLAND FRIED CHICKEN	A 10.9%	B 6.3%	C 9.1%	D 40.9%	E 32.8%
121. TATER TOT POTATOES	A 4.9%	B 10.9%	C 8.0%	D 41.2%	E 35.2%
122. FRIED BREADED CHEESE STICKS	A 9.6%	B 13.2%	C 10.6%	D 31.2%	E 35.5%
123. BLACKEYED PEAS WITH HAM	A 22.6%	B 26.0%	C 15.9%	D 22.7%	E 12.7%
124. SIMMERED CORNED BEEF	A 14.2%	B 18.9%	C 16.3%	D 36.0%	E 14.6%
125. BAKED BEANS	A 11.5%	B 20.2%	C 13.3%	D 40.4%	E 14.6%
126. HOME FRIED POTATOES	A 7.0%	B 14.8%	C 14.3%	D 45.8%	E 18.1%
127. TURKEY FRICASSEE	A 6.3%	B 11.3%	C 42.0%	D 30.3%	E 12.2%
128. BAKED POTATOES	A 6.2%	B 14.8%	C 11.0%	D 44.6%	E 23.5%
129. STUFFED BELL PEPPERS WITH MEAT SAUCE	A 23.7%	B 16.6%	C 15.4%	D 27.0%	E 17.3%

	DISLIKE EXTREMELY	DISLIKE MODERATELY	DON'T KNOW	LIKE MODERATELY	LIKE EXTREMELY
130. CHICKEN SALAD SANDWICHES	A 10.7	B 12.7%	C 13.4	D 39.9%	E 23.3%
131. PARSLEY BUTTERED POTATOES	A 8.7%	B 19.1	C 17.9	D 42.1%	E 12.1%
132. BEEF TERIYAKI	A 6.4	B 11.1%	C 11.6	D 41.6	E 29.3%
133. POTATOES, MASHED	A 9.2%	B 16.2%	C 10.7%	D 43.0%	E 21.0%
134. SWEDISH MEATBALLS	A 5.1	B 11.1%	C 13.5%	D 43.1%	E 27.3%
135. POTATOES, ESCALLOPED	A 13.7%	B 14.7%	C 18.4%	D 34.8%	E 13.4%
136. TAMALES CASSEROLE	A 15.9%	B 15.0%	C 33.4%	D 21.6%	E 14.1%
137. GERMAN POTATO CAKES	A 5.5%	B 14.9%	C 31.9%	D 30.1%	E 19.3%
138. ENCHILADA PIE	A 14.9%	B 14.7%	C 19.0%	D 29.6%	E 16.8%
139. POTATOES AU GRATIN	A 11.5%	B 17.5%	C 22.2%	D 37.5%	E 11.5%
140. MACARONI & CHEESE	A 19.4%	B 21.7%	C 10.8%	D 33.1%	E 15.0%
141. HAM SALAD SANDWICHES	A 13.2%	B 19.2%	C 20.0%	D 33.2%	E 14.4%
142. HONG KONG STEAK	A 4.7%	B 8.1%	C 38.1%	D 29.7%	E 19.4%
143. GRILLED CHICKEN FRIED STEAK	A 9.6%	B 15.7%	C 10.5%	D 41.3%	E 23.5%
144. POTATOES LYONNAISE	A 9.6%	B 12.6%	C 56.6%	D 16.7%	E 4.5%
145. BRAISED SWISS STEAK JARDINIERE	A 3.7%	B 6.9%	C 35.2%	D 35.3%	E 19.6%
146. MACARONI AU GRATIN	A 16.5%	B 78.7%	C 33.0%	D 24.0%	E 7.8%
147. CONTINENTAL RICE	A 7.1%	B 10.3%	C 27.3%	D 38.9%	E 16.8%
148. SWISS STEAK IN TOMATO SAUCE	A 7.2%	B 16.4%	C 16.1%	D 41.2%	E 19.0%
149. PORK FRIED RICE	A 12.6%	B 15.5%	C 21.4%	D 32.9%	E 16.5%
150. POTATOES SUZETTE	A 3.7%	B 11.4%	C 53.6%	D 20.5%	E 5.8%
151. TURKEY SALAD SANDWICHES	A 9.5%	B 12.6%	C 17.8%	D 39.1%	E 21.0%
152. POTATOES O'BRIAN	A 8.3%	B 12.2%	C 53.7%	D 19.6%	E 6.1%
153. GRILLED HAM & CHEESE SANDWICH	A 4.0%	B 9.2%	C 6.5%	D 42.9%	E 37.5%
154. MEXICAN GREEN CHILI CALIENTE	A 18.6%	B 17.1	C 26.6	D 23.9	E 13.7
155. SHRIMP JAMBALAYA	A 9.1	B 8.8	C 24.2	D 28.1	E 27.9
156. HOT PASTRAMI SANDWICHES	A 11.2	B 12.0	C 9.3	D 36.0	E 31.5
157. BUTTER BROILED LOBSTER TAIL	A 7.2	B 7.7	C 3.4	D 13.7	E 60.1

	<u>DISLIKE EXTREMELY</u>	<u>DISLIKE MODERATELY</u>	<u>DON'T KNOW</u>	<u>LIKE MODERATELY</u>	<u>LIKE EXTREMELY</u>
158. COLOSSAL FRANKS WITH CHILI	A 9.0%	B 13.3%	C 8.5%	D 41.2%	E 28.3%
159. BAKED HAM STEAK ALA RICHMOND	A 19.2%	B 21.3%	C 19.3%	D 27.9%	E 12.3%
160. HAMBURGER STEAKS ALA WOODCOCK	A 3.1%	B 6.0%	C 16.7%	D 41.9%	E 32.2%
161. GRILLED SMOKED HAM STEAK	A 19.8%	B 21.6%	C 12.6%	D 32.5%	E 13.5%
162. BEEF TACOS	A 6.7%	B 10.0%	C 7.2%	D 38.6%	E 37.6%
163. PORK CHOP SUEY	A 14.5%	B 18.4%	C 12.5%	D 35.8%	E 18.8%
164. PEACH & COTTAGE CHEESE	A 18.9%	B 16.2%	C 11.5%	D 33.1%	E 20.3%
165. BEEF GOULASH	A 8.6%	B 14.5%	C 25.2%	D 36.3%	E 15.3%
166. CANDIED YAMS	A 23.3%	B 19.5%	C 11.5%	D 31.1%	E 14.5%
167. CHICKEN W/RICE & VEGETABLES	A 7.6%	B 12.1%	C 13.0%	D 44.6%	E 22.4%
168. GRILLED CUBE STEAK	A 4.0%	B 9.7%	C 9.8%	D 46.3%	E 30.2%
169. SPINACH SALAD	A 23.6%	B 20.4%	C 14.9%	D 24.9%	E 16.3%
170. SHRIMP COCKTAIL	A 9.6%	B 6.0%	C 8.0%	D 25.7%	E 50.7%
171. PRINCESS HELENE	A 6.0%	B 5.0%	C 67.6%	D 13.7%	E 7.7%
172. CHINESE CUCUMBER SALAD	A 19.2%	B 20.9%	C 29.2%	D 21.6%	E 9.1%
173. PLANTATION FRIED CHICKEN	A 6.6%	B 7.9%	C 10.3%	D 41.3%	E 33.8%
174. BEEF STEW IRISH	A 4.1%	B 7.9%	C 18.2%	D 43.6%	E 26.1%
175. TOMATO & CUCUMBER SALAD	A 19.6%	B 21.7%	C 19.3%	D 26.4%	E 13.0%
176. BUTTER BROILED SPRING CHICKEN	A 7.9%	B 10.5%	C 17.4%	D 42.5%	E 1.7%
177. BEEF STROGANOFF	A 5.0%	B 9.2%	C 10.7%	D 40.3%	E 34.8%
178. LOBSTER NEWBURG	A 7.1%	B 6.1%	C 15.9%	D 24.7%	E 46.3%
179. ROAST TENDERLOIN OF BEEF	A 1.4%	B 4.8%	C 7.6%	D 32.6%	E 53.6%
180. BRAISED SIRLOIN TIPS HUNTER STYLE	A 2.4%	B 3.0%	C 14.0%	D 33.3%	E 46.8%
181. GREEN ISLAND SALAD	A 6.0%	B 8.6%	C 37.8%	D 28.0%	E 19.0%
182. COQ AU VIN	A 5.4%	B 5.4%	C 65.8%	D 14.8%	E 8.7%
183. HOT RUBEN SANDWICHES	A 11.0%	B 10.4%	C 10.1%	D 35.8%	E 32.2%
184. EGG SALAD SANDWICHES	A 18.2%	B 16.2%	C 12.0%	D 34.4%	E 19.2%
185. SHEPHERD'S PIE	A 7.4%	B 9.4%	C 41.1%	D 25.6%	E 16.5%

	DISLIKE EXTREMELY	DISLIKE MODERATELY	NO OPINION	LIKE MODERATELY	LIKE EXTREMELY
186. GRILLED FOOTLONG FRANKS	A 6	B 11.6	C 11.8	D 11.4	F 11.4
187. HASH BROWN POTATOES	A 6.3	B 11.9	C 11.8	D 11.8	F 11.4
188. BAR BQ CHICKEN	A 7.5	B 7.1	C 11.4	D 11.4	F 11.4
189. BEEF CHOW MEIN	A 7.9	B 19.2	C 11.5	D 11.4	F 11.4
190. DO-IT-YOURSELF CHILI DOGS	A 8.7	B 11.5	C 11.4	D 11.4	F 11.4
191. COMBINATION SALAD	A 6.9	B 11.7	C 18.4	D 11.4	F 11.4
192. PINEAPPLE & RAISIN COLE SLAW	A 28.3	B 72.5	C 11.4	D 11.4	F 11.4
193. LOBSTER SALAD	A 11.9	B 9.5	C 11.4	D 11.4	F 11.4
194. SOUTHERN FRIED CHICKEN	A 4.9	B 3.5	C 9.1	D 11.4	F 11.4
195. HOT GERMAN POTATO SALAD	A 14.3	B 5.3	C 29.1	D 11.4	F 11.4
196. BAR BQ CHICKEN STRIPS	A 9.3	B 14.2	C 4.1	D 11.4	F 11.4
197. WALDORF SALAD	A 3.2	B 11.7	C 45.9	D 11.4	F 11.4
198. BOSTON BAKED BEANS	A 12.8	B 20.1	C 15.4	D 11.4	F 11.4
199. BOILED NEW POTATOES	A 10.2	B 30.6	C 20.1	D 11.4	F 11.4
200. TOMATO RICE PILAF	A 15.0	B 18.0	C 34.7	D 11.4	F 11.4
201. FRIED CHICKEN PATTIES	A 8.4	B 12.3	C 10.4	D 11.4	F 11.4
202. VIRGINIA BAKED HAM	A 20.5	B 22.6	C 18.1	D 11.4	F 11.4
203. HOT TURKEY SANDWICHES	A 4.6	B 5.6	C 9.4	D 11.4	F 11.4
204. YANKEE POT ROAST	A 4.9	B 11.0	C 11.1	D 11.4	F 11.4
205. STEAK SANDWICH CUBED	A 3.1	B 7.7	C 2.8	D 11.4	F 11.4
206. RANCH STYLE POTATOES	A 5.3	B 12.4	C 20.6	D 11.4	F 11.4
207. CHICKEN KNOA MAI	A 7.5	B 6.5	C 5.0	D 11.4	F 11.4
208. BAR BQ BEEF	A 7.5	B 11.3	C 11.4	D 11.4	F 11.4
209. GRILLED SALISBURY STEAK	A 4.1	B 10.7	C 11.4	D 11.4	F 11.4
210. BUTTERED RICE	A 6.7	B 11.4	C 11.4	D 11.4	F 11.4
211. CHICKEN COOKED IN TARRAGON BUTTER	A 5.1	B 11.4	C 11.4	D 11.4	F 11.4
212. SLOPPY JOES	A 11.4	B 11.4	C 11.4	D 11.4	F 11.4

	<u>DISLIKE</u> <u>EXTREMELY</u>	<u>DISLIKE</u> <u>MODERATELY</u>	<u>DON'T</u> <u>KNOW</u>	<u>LIKE</u> <u>MODERATELY</u>	<u>LIKE</u> <u>EXTREMELY</u>
213. CRACKIN CORNBREAD	A 19.6%	B 18.5%	C 22.3%	D 31.0%	E 13.1%
214. SHRIMP SALAD	A 11.4%	B 9.9%	C 15.4%	D 31.6%	E 31.6%
215. BAKED MEATLOAF	A 18.3%	B 16.6%	C 8.5%	D 41.3%	E 15.3%
216. NEW ENGLAND CLAM CHOWDER	A 15.8%	B 14.9%	C 10.3%	D 26.3%	E 32.8%
217. TUNA SALAD SANDWICHES	A 12.5%	B 12.4%	C 10.7%	D 38.8%	E 26.1%
218. FRENCH DIP	A 2.5%	B 4.2%	C 4.0%	D 23.6%	E 65.7%
219. REFRIED BEANS	A 20.7%	B 20.7%	C 14.9%	D 28.5%	E 15.3%
220. BEAN SALAD	A 26.1%	B 32.0%	C 16.3%	D 18.6%	E 7.1%
221. LETTUCE & TOMATO SLICES	A 7.2%	B 11.8%	C 14.5%	D 43.5%	E 23.0%
222. BAKED ITALIAN MEATLOAF	A 17.8%	B 14.0%	C 14.7%	D 38.9%	E 22.3%
223. BEEF CHOP SUEY	A 10.1%	B 14.0%	C 14.7%	D 30.7%	E 14.2%
224. HAWAIIAN CUTLETS	A 8.9%	B 11.6%	C 34.6%	D 30.7%	E 14.2%
225. SHRIMP CREOLE	A 15.8%	B 12.1%	C 10.0%	D 31.4%	E 30.6%
226. POTATOES, COTTAGE FRIED	A 11.9%	B 15.5%	C 32.6%	D 30.4%	E 9.6%
227. ITALIAN BEEF SHELLERONI	A 10.0%	B 13.2%	C 30.5%	D 31.9%	E 14.4%
228. CHICKEN ALA MARENGO	A 7.2%	B 9.4%	C 52.1%	D 22.3%	E 9.1%
229. PIKES PEAK SANDWICHES	A 2.2%	B 5.2%	C 6.6%	D 40.5%	E 45.6%
230. SEAFOAM SALAD	A 14.6%	B 11.4%	C 48.8%	D 16.2%	E 9.0%
231. CHILI CON CARNE W/BEANS	A 11.7%	B 15.6%	C 13.6%	D 37.9%	E 21.7%
232. BIG MITCH SANDWICHES	A 3.3%	B 4.6%	C 8.1%	D 36.9%	E 41.1%
233. DEEP FRIED SHRIMP	A 3.7%	B 5.1%	C 4.3%	D 21.4%	E 60.6%

APPENDIX B

Cadet Food Survey Analysis of Highly Liked
and
Disliked Items

HIGHER PERCENTAGE/LIKED EXTREMELY (cont'd)

63.2%	Chicken Salad Sandwiches
71%	Beef Teriyaki
64%	Potatoes, Mashed
70.4%	Swedish Meatballs
66.8%	Grilled Chicken Fried Steak
60.2%	Swiss Steak in Tomato Sauce
60.1%	Turkey Salad Sandwiches
80.4%	Grilled Ham & Cheese Sandwiches
67.5%	Hot Pastrami Sandwiches
78.8%	Butter Broiled Lobster Tail
69.2%	Colossal Franks with Chili
74.1%	Hamburger Steaks Ala Woodcock
76.2%	Beef Tacos
67.7%	Chicken with Rice and Vegetables
76.5%	Grilled Cube Steak
76.4%	Shrimp Cocktail
75.1%	Plantation Fried Chicken
69.7%	Beef Stew Irish
64.2%	Butter Broiled Spring Chicken
75.1%	Beer Stroganoff
71%	Lobster Newburg
86.2%	Roast Tenderloin of Pork
80.6%	Braised Sirloin Tips Hunter Style
47.5%	Green Island Salad
68%	Hot Ruben Sandwiches
69.5%	Grilled Footlong Franks
66.4%	Hash Brown Potatoes
68.7%	BBQ Chicken
64.9%	Beef Chow Mein
67.8%	Do-It-Yourself Chili Dogs
77.1%	Southern Fried Chicken
66.8%	BBQ Chicken Strips
68.5%	Fried Chicken Patties
78.4%	Hot Turkey Sandwiches

HIGHER PERCENTAGE/LIKED EXTREMELY (cont'd)

71.6%	Yankee Pot Roast
80.5%	Steak Sandwich Cubed
65.3%	BBQ Beef
73.2%	Grilled Salisbury Steak
67.9%	Buttered Rice
65.8%	Sloppy Joes
63.2%	Shrimp Salad
64.4%	Tuna Salad Sandwiches
89.3%	French Dip
66.5%	Lettuce & Tomato Slices
61.2%	Beef Chop Suey
86.1%	Pikes Peak Sandwiches
84%	Big Mitch Sandwiches
82.2%	Deep Fried Shrimp

RESULTS/CADET SURVEY

HIGHER PERCENTAGE/DISLIKED EXTREMELY

48.6% Baked Breaded Pork Chops
45.7% Grilled Pork Chops
52% Stuffed Cabbage Rolls
46.1% Grilled Breaded Pork Cutlets
45.6% Peanut Butter Pie
39.9% Stuffed Pork Chops
53.2% Mexican Cole Slaw
45.6% Cole Slaw
68.9% Beet & Onion Salad
61% Kidney Bean Salad
34.6% William Tell Cole Slaw
48.7% Black-eyed Peas with Ham
35.2% Macaroni Au Gratin
44% Spinach Salad
40.1% Chinese Cucumber Salad
50.8% Pineapple & Raisin Cole Slaw
58.1% Bean Salad

APPENDIX C

Nutritional Analysis of Menus

TOTALS BY UNITS

Week #1
Male

<u>GMS</u> <u>PROT</u>	<u>GMS</u> <u>CHO</u>	<u>GMS</u> <u>FAT</u>	<u>P/S RATIO</u>	<u>MGS</u> <u>PHOS</u>	<u>MGS</u> <u>POT</u>	<u>MGS</u> <u>ZINC</u>	<u>IUS</u> <u>VITA</u>	<u>MGS</u> <u>VITC</u>	<u>MGS</u> <u>THIA</u>	<u>MGS</u> <u>RIBO</u>	<u>MGS</u> <u>NIAC</u>	<u>MGS</u> <u>CALC</u>	<u>MGS</u> <u>IRON</u>
154	482	149	13.9/53.5= 3	2588	5791	6.4	11659	342	2.7	3.6	32.9	1768	27.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values
for Total Intake

CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
1.0	2.9	2.5	6.1	1.9	2.2	1.8	2.4	2.9

U.S.
%of Dietary

Calories	Total		
Total	3877		
Fat	1344	34	30
Carbohydrates	1928	49	58
Protein	614	15	12
Alcohol	0	0	

P/S Ratio	13.9/53.5=	.3
Mg Cholesterol	709	
MG Sodium	5325	

% of RDA Profile

Nutrient	% RDA	0	10	20	30	40	50	60	70	80	90	100	110	120	130+	
Calories	93	*****:														
Protien	274	*****:*****														
Vitamin A	233	*****:*****														
Vitamin C	569	*****:*****														
Thiamine	179	*****:*****														
Riboflavin	210	*****:*****														
Niacin	173	*****:*****														
Calcium	221	*****:*****														
Iron	271	*****:*****														

YOUR ENERGY (CALORIE)NEEDS FOR YOUR SEX AND CURRENT
AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 4128 Calories

TOTALS BY UNITS

Week #2
MALE

<u>GMS</u> <u>PROT</u>	<u>GMS</u> <u>CHO</u>	<u>GMS</u> <u>FAT</u>	<u>P/S RATIO</u>	<u>MGS</u> <u>PHOS</u>	<u>MGS</u> <u>POT</u>	<u>MGS</u> <u>ZINC</u>	<u>IUS</u> <u>VITA</u>	<u>MGS</u> <u>VITC</u>	<u>MGS</u> <u>THIA</u>	<u>MGS</u> <u>RIBO</u>	<u>MGS</u> <u>NIAC</u>	<u>MGS</u> <u>CALC</u>	<u>MGS</u> <u>IRON</u>
155	488	153	11.2/57.9=.2	2795	5776	7.7	11013	382	2.8	3.8	32.9	1936	28.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values FOR Total Intake	CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
	1.0	2.9	2.3	6.7	2.0	2.4	1.8	2.5	2.9

U.S.
% of Dietary

Calories	Total		
Total	3947		
Fat	1376	34	30
Carbohydrates	1952	49	58
Protein	619	15	12
Alcohol	0	0	

P/S Ratio	11.2/57.9=	.2
MG Cholesterol	735	
MG Sodium	4250	

% of RDA Profile

Nutrient	% RDA	0	10	20	30	40	50	60	70	80	90	100	110	120	130+
Calories	95	***** :													
Protein	276	***** : *****													
Vitamin A	220	***** : *****													
Vitamin C	636	***** : *****													
Thiamine	187	***** : *****													
Riboflavin	226	***** : *****													
Niacin	172	***** : *****													
Calcium	242	***** : *****													
Iron	281	***** : *****													

YOUR ENERGY (CALORIE) NEEDS FOR YOUR SEX AND CURRENT
AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 4128 Calories

TOTALS BY UNITS

Week #3
Male

<u>GMS</u> <u>PROT</u>	<u>GMS</u> <u>CHO</u>	<u>GMS</u> <u>FAT</u>	<u>P/S RATIO</u>	<u>MGS</u> <u>PHOS</u>	<u>MGS</u> <u>POT</u>	<u>MGS</u> <u>ZINC</u>	<u>IUS</u> <u>VITA</u>	<u>MGS</u> <u>VITC</u>	<u>MGS</u> <u>THIA</u>	<u>MGS</u> <u>RIBO</u>	<u>MGS</u> <u>NIAC</u>	<u>MGS</u> <u>CALC</u>	<u>MGS</u> <u>IRON</u>
161	467	163	20.3/59.3=.3	2814	5862	6.5	14662	465	3.1	3.9	37.6	2009	27.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values For Total Intake	CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
	1.0	3.0	3.1	8.1	2.1	2.4	2.1	2.6	2.8

U.S.
% of Dietary

Calories	Total		
Total	3950		
Fat	1462	37	30
Carbohydrates	1869	47	58
Protein	645	16	12
Alcohol	0	0	

P/S Ratio 20.3/59.3 = .3
MG Cholesterol 746
MG Sodium 5047

Nutrient	% RDA	-----% of RDA Profile-----												
		0	10	20	30	40	50	60	70	80	90	100	110	120
Calories	95	***** :												
Protein	288	***** :												
Vitamin A	293	***** :												
Vitamin C	775	***** :												
Thiamine	205	***** :												
Riboflavin	210	***** :												
Niacin	197	***** :												
Calcium	251	***** :												
Iron	271	***** :												

YOUR ENERGY (CALORIE)NEEDS FOR YOUR SEX AND CURRENT
AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 4128 Calories

TOTALS BY UNITS

Week #1
Female

<u>GMS</u> <u>PROT</u>	<u>GMS</u> <u>CHO</u>	<u>GMS</u> <u>FAT</u>	<u>P/S RATIO</u>	<u>MGS</u> <u>PHOS</u>	<u>MGS</u> <u>POT</u>	<u>MGS</u> <u>ZINC</u>	<u>IUS</u> <u>VITA</u>	<u>MGS</u> <u>VITC</u>	<u>MGS</u> <u>THIA</u>	<u>MGS</u> <u>RIBO</u>	<u>MGS</u> <u>NICA</u>	<u>MGS</u> <u>CALC</u>	<u>MGS</u> <u>IRON</u>
154	482	149	13.9/53.5=.3	2588	5791	6.4	11656	342	2.7	3.6	32.9	1768	27.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values For Total Intake	CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
	1.0	2.4	2.0	3.9	1.7	1.9	1.6	1.5	1.0

Calories	Total	% of Cals	U.S. Dietary Goals
Total	3877		
Fat	1344	34	30
Carbohydrates	1928	49	58
Protein	614	15	12
Alcohol	0	0	

P/S RATION 13.9/53.5= .3
MG Cholesterol 709
MG Sodium 5235

Nutrient	% of RDA	-----% of RDA Profile-----													
		0	10	20	30	40	50	60	70	80	90	100	110	120	130+
Calories	147	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Protein	349	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Vitamin A	291	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Vitamin C	569	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Thiamine	244	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Riboflavin	275	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Niacin	235	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Calcium	221	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Iron	150	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

YOUR ENERGY (CALORIE) NEEDS FOR YOUR SEX AND CURRENT
AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 2624 Calories

Week #1
Female

YOUR CALORIE INTAKE WAS HIGHER THAN YOUR CALCULATED NEEDS.
ANY FOOD WHICH HAS 5 OR MORE NUTRIENTS WITH A NUTRIENT DENSITY OF LESS
THAN 1.0 WILL BE LISTED BELOW.

130 Applesauce, Canned, Sweetened
145 Apples, Raw, Not Pared
325 Beans W/Pork, Canned In Sweet Sauce
420 Bean Salad, Three Bean
580 Beef, Rib Roast, Roasted, Lean + Fat
915 Brownies, with Nuts
960 Butter
1100 Cake, Chocolate with Chocolate Icing
1175 Cake, Yellow with Chocolate Icing
1110 Cake, Coffeecake
1265 Candy, Fudge, Chocolate
2120 Coffee, Black
2125 Coffee, Decaffeinated
2150 Coleslaw, French or CKD Salad Dressing
2540 Cream Puffs/Eclairs with Custard Filling
2715 Doughnut, Cake Type, Plain
2990 Fruit Cocktail, Canned, Heavy Syrup
3155 Grape Juice Drink Welchade
3165 Grape Juice, Vit C Fort, GZ+Dil, Swt
3485 Koolaid, Vit C Fort, Made W Water + Sugar
3570 Lemonade, Frozen + Diluted
3935 Mayonnaise
4405 Orange Flavored Vit C Pwdr (Tang) + Water
4485 Peaches, Canned, Heavy Syrup
4730 Pickle Relish, Sweet
4780 Pie, Cherry (2 Crust)
4805 Pie, Lemon Chiffon (1 Crust)
4890 Pineapple Juice, Frozen + Diluted, Unswt
5160 Potatoes, Fried
5165 Potatoes, Hashed Brown
5205 Potato Chips
5485 Roll/Bun, Soft, Unenriched
6520 Syrup, Maple + Cane Blend
6595 Tang (Orange Flavored Vitamin C Drink
6625 Tea

TOTALS BY UNITS

Week #2
Female

GMS PROT	GMS CHO	GMS FAT	P/S RATIO	MGS PHOS	MGS POT	MGS ZINC	IUS VITA	MGS VITC	MGS THIA	MGS RIBO	MGS NIAC	MGS CALC	MGS IRON
155	488	153	11.2/57.9=.2	2795	5776	7.7	11010	382	2.8	3.8	32.9	1936	28.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values For Total Intake	CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
	1.0	2.3	1.8	4.2	1.7	2.0	1.6	1.6	1.0

Calories	Total	% of Cals	U.S. Dietary Goals
Total	3947		
Fat	1376	34	30
Carbohydrates	1952	49	58
Protein	619	15	12
Alcohol	0	0	

P/S Ratio	11.2/57.9=	.2
MG Cholesterol	735	
MG Sodium	4250	

Nutrient	% RDA	-----% of RDA Profile-----												
		0	10	20	30	40	50	60	70	80	90	100	110	120
Calories	150	***** : *****												
Protein	352	***** : *****												
Vitamin A	275	***** : *****												
Vitamin C	635	***** : *****												
Thiamine	255	***** : *****												
Riboflavin	295	***** : *****												
Niacin	234	***** : *****												
Calcium	242	***** : *****												
Iron	156	***** : *****												

YOUR ENERGY (CALORIE) NEEDS FOR YOUR SEX AND CURRENT AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 2624 Calories

Week #2
Female

YOUR CALORIE INTAKE WAS HIGHER THAN YOUR CALCULATED NEEDS.
ANY FOOD WHICH HAS 5 OR MORE NUTRIENTS WITH A NUTRIENT DENSITY OF LESS
THAN 1.0 WILL BE LISTED BELOW.

130 Applesauce, Canned, Sweetened
145 Apples, Raw, Not Pared
180 Apple Juice, Canned/Bottled, Vit C Fort
580 Beef, Rib Roast, Roasted, Lean + Fat
635 Beef, Steak, Sirloin/Strip, Brld, Lean + Fat
760 Blueberries, Canned, Artif Swt
850 Bread, French, Unenriched
960 Butter
1100 Cake, Chocolate with Chocolate Icing
1175 Cake, Yellow with Chocolate Icing
2005 Chocolate Syrup, Thing Type
2145 Coke (See "Soft Drinks" for other Kinds)
2715 Doughnut, Cake Type, Plain
3070 Grapefruit Juice, Canned, Swt
3155 Grape Juice Drink (Welchade)
3180 Gravy, Brown
3570 Lemonade, Frozen + Diluted
4365 Onion Rings, French Fried
4450 Pancakes, Plain, Made w Unenriched Flour
4550 Pears, Canned, Heavy Syrup
4755 Pie, Banana Custard (1 Crust)
4810 Pie, Lemon Meringue (1 Crust)
5165 Potatoes, Hashed Brown
5485 Rolls/Buns, Soft, Unenriched
5495 Rolls/Buns, Cinnamon
5885 Sherbet, All Flavors
6520 Syrup, Maple + Cane Blend
6595 Tang (Orange Flavored Vitamin C Drink)
6625 Tea

TOTALS BY UNITS

Week #3
Female

GMS PROT	GMS CHO	GMS FAT	P/S RATIO	MGS PHOS	MGS POT	MGS ZINC	IUS VITA	MGS VITC	MGS THIA	MGS RIBO	MGS NIAC	MGS CALC	MGS IRON
161	467	163	20.3/59.3=.3	2814	5862	6.5	14662	465	3.1	3.9	37.6	2009	27.2

NUTRIENT DENSITY FOR TOTAL DAILY INTAKE

Nutrient Density Values For Total Intake	CALS	PROT	VITA	VITC	THIA	RIBO	NIAC	CALC	IRON
	1.0	2.4	2.4	5.1	1.9	2.0	1.8	1.7	1.0

Calories	Total	% of	U.S. Dietary
Total	3950		
Fat	1462	37	30
Carbohydrates	1869	47	58
Protein	645	16	12
Alcohol	0	0	

P/S Ratio 20.3/59.3= .3
MG Cholesterol 746
MG Sodium 5047

-----% of RDA Profile-----

Nutrient	%	RDA	0	10	20	30	40	50	60	70	80	90	100	110	120	130+
Calories		150	*****											*****		
Protein		367	*****											*****		
Vitamin A		366	*****											*****		
Vitamine C		775	*****											*****		
Thiamine		280	*****											*****		
Riboflavin		303	*****											*****		
Niacin		268	*****											*****		
Calcium		251	*****											*****		
Iron		150	*****											*****		

YOUR ENERGY (CALORIES) NEEDS FOR YOUR SEX AND CURRENT
AGE, WEIGHT AND ACTIVITY LEVEL WERE CALCULATED TO BE: 2624 Calories

Week #3
Female

YOUR CALORIE INTAKE WAS HIGHER THAN YOUR CALCULATED NEEDS.
ANY FOOD WHICH HAS 5 OR MORE NUTRIENTS WITH A NUTRIENT DENSITY OF LESS
THAN 1.0 WILL BE LISTED BELOW:

145 Apples, Raw, Not Pared
420 Bean Salad, Three Bean
605 Beef, Steak, Club, Broiled, Lean + Fat
960 Butter
1100 Cake, Chocolate with Chocolate Icing
1155 Cake, Raisin Nut, No Icing
1175 Cake, Yellow with Chocolate Icing
2150 Coleslaw, French or CKD Salad Dressing
2190 Cookies, Chocolate Ch $\frac{1}{2}$
2580 Cream, Sour, Imitation
2715 Doughnut, Cake Type, Plain
2905 Fishsticks, Frozen + Reheated
2915 Flounder, Breaded, Fried
2990 Fruit Cocktail, Canned, Heavy Syrup
3030 Gingerbread, No Icing
3155 Grape Juice Drink (Welchade)
3180 Gravy, Brown
3430 Jello, Low Calorie D-Zerta, All Flavors
3570 Lemonade, Frozen + Diluted
3699 Lemon Sauce
3935 Mayonnaise
4205 Nuts, Mixed Dry Roast
4405 Orange Flavored Vit C Pwdr (Tang) + Water
4485 Peaches, Canned, Heavy Syrup
4540 Peanut Butter (Made with Added Salt)
4730 Pickle Relish, Sweet
4750 Pie, Apple (2 Crust)
4755 Pie, Banana Custard (1 Crust)
4890 Pineapple Juice, Frozen+ Diluted, UnSwt
5210 Potato Sticks
5220 Potato Salad, w/Hard Ckd Egg + Mayonnaise
5485 Rolls,/Buns, Soft, Unenriched
5495 Rolls/Buns, Cinnamon
6355 Strawberries, Frozen, Sweetened, Sol+Liq
6520 Syrup, Maple+ Cane Blend
6595 Tang, (Orange Flavored Vitamin C Drink)
6620 Tartar Sauce, Regualr
6625 Tea

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