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THE RELATIVE ACCEPTABILITY AND CONSUMPTION OF THE CURRENT T RATION WITH AND WITHOUT NEW BREAKFAST AND DINNER MENUS

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13. ABSTRACT (Maximum 200 words) A seven day field test was conducted to assess ration consumption and acceptability of the current T Ration with and without two new breakfast and three new dinner menus. The test was conducted with two companies (total n=176) from the 25th Infantry Division (Light) during training exercises (June - July 1991) at Pohakuloa Training Area, HI. One Company was issued the current T ration with the new menus (Test group) and one Company was issued the current T Ration without the new menus (Control group). Both groups were issued one Meal, Ready-to-Eat daily. The Control group consumed more calories than the Test group (3174 versus 2657 kcal/day) and rated the T Ration items as more acceptable. Both groups generally met the MRDAs and neither weight loss or dehydration were problematic in either group. Consumption and acceptability of the new T ration menus was similar to the other T Rations with some of the new ration items receiving relatively high acceptability ratings and some relatively low ratings. Based on the current results and previous field studies, the T Ration appears to be a reliable, generally adequate ration. However, additional efforts are warranted to further improve consumption and acceptability of the ration.				
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Preface

The data for this report were collected by investigators from U.S. Army Natick Research, Development and Engineering Center during the 25th Infantry Division's Opportune Journey 2-91 and Union Pacific '91 training exercises. Data collection took place during the period 21 June - 3 July 1991 at the Pohakuloa Training Area (PTA) on the island of Hawaii. This report encompasses nutrient and water intake, ration acceptability, and human factors issues related to the use of T Rations and the Meal, Ready-To-Eat (MRE). These were evaluated by the Soldier Science Directorate (SSD), Natick, with support from the US Army Research Institute of Environmental Medicine (USARIEM), under Project No. 1L162786AH99BFE00.

Human subjects participated in this study after giving their free and informed voluntary consent. Investigators adhered to AR 70-25 and USAMRDC Regulation 70-25 on Use of Volunteers in Research.

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Finally, we express gratitude to the officers and soldiers of the 25th Infantry Division for their support and cooperation through all phases of the study, from initial planning through final completion of data collection. At the division level BG Covault and the Division Food Adviser, CW3 Hill, provided essential support. At the Battalion level we particularly wish to thank LTC Adamczyk, MAJ Fowler, 1LT Reed, CPT Barry, CPT Howell, 1SG Riveranadal, 1SG Maez, and SFC Choi for their consistent patience and cooperation in the day-to-day efforts needed to complete the study successfully.

THE RELATIVE ACCEPTABILITY AND CONSUMPTION OF THE CURRENT T RATION WITH AND WITHOUT NEW BREAKFAST AND DINNER MENUS

Introduction

The T Ration is designed for feeding groups of soldiers and is packed in 36-person, modular units containing all elements of a given menu. Single menu items are contained in rectangular metal cans half the size of a standard steam table tray and hold 12 to 18 servings of an entree, vegetable, starch, bread, or dessert. The thin, flat-tray shape permits rapid heating and can be heated in a variety of ways. This enables a minimum number of food service personnel to quickly transport a hot meal to the front lines and distribute it by serving right out of the cans (Meyer and Klicka, 1982). The current (FY90) version provides a 10-day menu cycle which includes two T Ration meals. The third daily meal is typically either a Meal, Ready-to-Eat (MRE) or another operational ration.

Early acceptance tests of the initial versions of the T Ration yielded promising results which are detailed by Gagne et al. (1988). Findings from the first comprehensive field test of the T Ration during an operational exercise (Combat Field Feeding System, Vol. I, II, and III, 1986 (CFFS)), as well as other user assessments (Gagne et al., 1988), led to a series of implemented modifications. These modifications were subsequently tested in a 14-day field test comparing the FY89 and FY90 versions of the Tray Ration (Salter et al., 1991). Ration consumption for both the FY89 and FY90 versions averaged approximately 2900 calories per day and most nutrients were consumed at or above the recommended levels. A majority of the ration items were liked slightly or better. Results from this comprehensive evaluation (Salter et al., 1991) indicated that neither ration acceptance, ration consumption, body weight loss, or hydration status differed as a function of T Ration version. In addition, it was noted that the 10-day cycle for the 1990 T Ration did not have any detrimental effects on consumption or acceptability relative to the 14 day 1989 cycle. In comparison to earlier versions of the T ration (e.g. CFFS, 1986), the rations received more favorable ratings, had a modest increase in consumption, and overall showed improvement.

The present 7-day test replicated the methodology of Salter et al. (1991) in order to compare the FY90 T Ration to a newer FY90 version. The most recent FY90 version contained different menu items including two new breakfast and three new lunch/dinner menus. The test also provided additional information on items new to the original FY90 T Ration.

Objectives

The purpose of this field test was to compare the original FY90 T Ration to the newer FY90 T Ration which had different menus (two new breakfast and three new lunch/dinner meals). Specific questions addressed included:

1. How well did intake of the two ration versions meet the

Surgeon General's Military Recommended Dietary Allowances (MRDA, 1985) for protein, vitamins, minerals, fat, and energy?

2. How did the two ration versions compare on soldiers' nutrient intake, weight loss, and hydration status?

3. What were troop opinions of the two ration versions and, in particular, how were the new menu items received?

Methods

Test Design

This field test primarily focused on comparing T Ration versions in terms of consumption and acceptance. Additional complementary measures (e.g. body weight, urine specific gravity) were also collected. The data collection schedule was coordinated with the participating units and kept as brief as possible to minimize interference with the training exercise. The present report is based on data collected after breakfast on the first day of the training exercise through breakfast of the seventh day.

Test Site

The test site was the Pohakuloa Training Area (PTA) on the island of Hawaii. Pohakuloa is a remote site with rugged terrain located at approximately 6,000 feet. Daily high and low temperatures ranged between 70 and 40 degrees Fahrenheit. The Air Force Weather Station recorded only traces of rainfall in PTA during the time of the study. Each company also trained for two to three days in a more tropical site neighboring PTA. At this more tropical site rainfall was heavier (i.e. frequent light showers), but the amount of rainfall was not recorded. The same sites were also employed for the two previous major field tests of the T Ration (CFFS, 1986; Salter et al., 1991); these sites offered the advantage of temperate climate, (reducing the potential complications of extreme temperatures on hydration status and food intake) and remote location (resulting in little opportunity for obtaining non-ration foods).

Test Subjects

The troops that participated in this study were two companies of regular Army soldiers from the 25th Infantry Division. This division routinely engages in long-term field training exercises at the PTA. Two intact companies were used in order to take advantage of the standard chain of command and to avoid the problem of serving different rations to soldiers within the same company. The two companies engaged in the same three training components with the only difference being the sequence of these components. Both companies were "moderately" physically active during the test.

All available soldiers in each company (approximately 80 soldiers apiece) completed the pre- and post-test questionnaires. A subset of 40 soldiers from each company provided detailed data regarding ration intake, ration acceptability and body weight. Daily urine samples for hydration assessment were also collected from this subset of

subjects. Ten subjects out of each subset of 40 also participated in a focus group discussion of the rations.

Pretest Briefings

Prior to the training exercise, a briefing was held for battalion leaders, company commanders, and food service personnel at Schofield Barracks on the island of Oahu. The purpose, design, and requirements of the test were presented. Commanders were requested to refrain from influencing the soldiers' responses to the rations.

Pretest briefings were conducted separately for each of the two companies five days before the test began. The groups were briefed about the measures to be obtained and the time involved in the daily schedule of data collection. Troops were shown the Flameless Ration Heater (FRH) and were given brief instructions in its use for heating MRE Entrees. Following a question and answer period, individuals were requested to read and complete the Volunteer Agreement Affidavit (Appendix A). It was explained to the troops that if they declined to volunteer or decided later to withdraw from the test, they would still be fed the same food and participate in their company's training to the same extent as test subjects. It was further explained that withdrawal from the data-collection effort would not result in any penalty. At this point, all volunteers completed a Background Questionnaire (Appendix B) and then returned to their duties.

Two subgroups of soldiers, (approximately 40 volunteers from each company), returned for additional briefings 2 days prior to the start of the test. Subjects met daily with the same data collector (about 8 subjects/data collector) throughout the study. These subjects were informed that data collection would include data on food intake, acceptability ratings, urine samples, and measures of body weight. Data collectors also distributed other non-ration supplies for the first day of the test. The data collector restated the test goals and requirements, repeated the usage instructions for the FRH, and provided detailed instruction for completing the daily MRE intake records (Appendix G). Troops were given a chance to examine the FRH and were encouraged to ask questions regarding the heater, the intake records, or any other aspect of the test.

Test Supplies and Distribution

The test lasted for a period of one week. Data collectors were on-site throughout both of the daily T Ration meals.

Rations. The study was designed such that each soldier received two T Ration meals (breakfast and dinner) and one MRE (lunch) per day for the duration of the study. One company (Control Group) received menus from the FY90 T Ration (Table 1) and the other company (Test Group) received the five new menus in addition to menus drawn from the FY90 T Ration (Table 2). As in past exercises, distribution of the planned ration items was incomplete. The majority of these deficiencies during T Ration meals were shortages of minor components such as salad dressings

Table 1. Control Group Menus

BREAKFAST

1. OMELET W/BACON PIECES
Pork Sausages
Canned Peaches
Fresh Fruit
Grape Juice
Cereal, bread, milk, coffee, cocoa
2. WESTERN OMELET
Ham Slices
Canned Peaches
Fruit Cocktail
Fresh Fruit
Apple Coffee Cake
Bread Pudding w/Syrup
Grape Juice
Oatmeal, cereal, bread, milk, coffee, cocoa
3. OMELET W/BACON PIECES
Pork Sausages
Fruit Cocktail, Pears
Fresh Fruit
Apple Coffee Cake
Orange Juice
Cereal, bread, milk, coffee, cocoa
4. OMELET W/SAUSAGE & POTATOES
Ham Slices
Fresh Fruit
Grape Juice
Blueberry Cake
Oatmeal, cereal, bread, milk, coffee, cocoa
5. WESTERN OMELET
Ham Slices
Peaches
Fresh Fruit
Orange Juice
Oatmeal, cereal, bread, milk, coffee, cocoa
6. CREAMED GROUND BEEF
Potatoes w/Butter Sauce
Canned pears
Fresh Fruit
Orange Juice
Oatmeal, cereal, bread, milk, coffee, cocoa

DINNER

1. LASAGNA
Green Beans
Fruit Cocktail, Fresh Fruit
Salad
Grape Beverage, cocoa
Bread, milk, coffee, peanut butter, jelly
2. TURKEY SLICES
Potatoes w/Butter Sauce
Green Beans
Pears
Fresh Fruit
Salad
Pound Cake
Lemon-Lime and Grape Beverage
Bread, milk, coffee, peanut butter, jelly
3. BEEF POT ROAST
White Rice
Mixed Vegetable
Fruit Cocktail, Fresh Fruit, Salad
Chocolate Cake
Grape Beverage
Bread, milk, coffee, peanut butter, jelly
4. HAMBURGER PATTIES
Beans and Bacon Sauce
Fruit Cocktail, Fresh Fruit, Salad
Cheese Spread
Orange Beverage
Bread, milk, coffee, peanut butter, jelly
5. CHICKEN CACCIAOTORE
Potatoes & Bacon Sauce
Green Beans, Chocolate Pudding
Fruit Cocktail, Fresh Fruit, Salad
Lemon-Lime Beverage
Bread, Milk, coffee, peanut butter, jelly
6. LASAGNA
Green Beans
Fruit Cocktail, Fresh Fruit
Salad
Grape Beverage, cocoa
Bread, milk, coffee, peanut butter, jelly

Table 2. Test Group Menus

BREAKFAST

1. OMELET W/SAUSAGE AND POTATOES
Ham Slices
Fresh Fruit
Blueberry Cake
Grape Juice, cereal
Oatmeal, bread, milk, coffee, cocoa
2. PORK PATTIES*
Biscuits
Peaches
Cinnamon Crumb Cake
Orange Juice
Hot Sauce
Milk, coffee, cocoa
3. BREAD PUDDING
Maple Syrup
Ham Slices
Fruit Cocktail
Fresh Fruit
Apple Coffee Cake
Orange Juice
Bread, cereal, milk, coffee, cocoa
4. CREAMED CHIPPED BEEF*
Biscuits
Cinnamon Crumb Cake
Fruit Cocktail
Fresh Fruit
Orange Juice
Cereal, bread, milk, coffee, cocoa
5. WESTERN OMELET
Ham Slices
Peaches
Blueberry Cake
Orange Juice
Oatmeal, bread, milk, coffee, cocoa
6. OMELET W/SAUSAGE AND POTATOES
Ham Slices
Fresh Fruit
Blueberry Cake
Grape Juice
Oatmeal, cereal, bread, milk, coffee
Cocoa, peanut butter, jelly

DINNER

1. LASAGNA
Green Beans
Fruit Cocktail, Fresh Fruit
Chocolate Brownie Cake
Grape Beverage, cocoa
Bread, milk, coffee, peanut butter, jelly
2. CHICKEN BREAST PATTIES*
Rolls
Whole Kernel Corn
Fresh Fruit, Salad
Chocolate Crumb Cake
Grape and Lemon-Lime Beverages
Bread, milk, coffee, peanut butter, jelly,
3. BEEF POT ROAST
White Rice
Peas and Carrots
Fresh Fruit
Salad
Chocolate Cake
Grape Beverage
Bread, milk, coffee, peanut butter, jelly
4. BONELESS BBQ PORK RIBS*
Rolls
Whole Kernel Corn
Fresh Fruit, Salad
Marble Crumb Cake
Lemonade, Cherry and Grape Beverages
Milk, coffee, peanut butter, jelly, hot sauce
5. HAMBURGER PATTIES
Rolls
Beans w/Bacon Sauce
Fruit Cocktail, Fresh Fruit, Salad
Cheese Spread, Ketchup, Mustard, Relish
Orange Beverage, bread, milk, coffee, cocoa
6. CHICKEN CHOW MEIN*
Oriental Rice
Green Beans
Peaches, Fresh Fruit, Salad
Chocolate Crumb Cake
Orange and Lemon-Lime Beverages
Bread, milk, coffee, peanut butter, jelly

* NEW MENUS

or having one as opposed to two flavors of milk or bread. In the Test group, oatmeal was typically not available at the breakfast meals and food service personnel were able to offer only one pork rib serving at that dinner meal rather than the planned portion of two servings. When served the hamburger dinner meal, soldiers in the Control group were not provided the planned hamburger rolls or condiments.

Additional supply constraints stemmed from a concurrent MRE test. MRE VIII and MRE X distribution problems resulted in the availability of only six of the 12 menus (Table 3). Nutrient content for each ration type is provided in Appendices C-E.

Table 3. Menus in the Meal, Ready-to-Eat

1. Corned Beef Hash	Crackers
Jelly	Fruit
Oatmeal Cookie Bar	Cocoa
Beverage Base	Accessory Pack
2. Chicken Stew	Crackers
Peanut Butter	Fruit
Cocoa	Beverage Base
Candy	Accessory Pack
3. Omelet with Ham	Crackers
Potatoes au Gratin	Oatmeal Cookie Bar
Cocoa	Beverage Base
Accessory Pack	
4. Chicken ala King	Crackers
Peanut Butter	Fruit
Cocoa	Beverage Base
Accessory Pack	
5. Beef Stew	Crackers
Peanut Butter	Cherry Nut Cake
Beverage Base	Accessory Pack
6. Meatballs with Rice and Sauce	Crackers
Peanut Butter	Fruit
Chocolate Covered Cookie	Beverage Base
Accessory Pack	

Flameless Ration Heaters. Each soldier received one FRH per day for heating MRE entrees.

Other Supplies. At each daily breakfast meeting, data collectors supplied subjects with a new trash bag for collection of MRE waste and a new MRE intake record.

Data Collection Procedures

Dependent Measures

Table 4 lists the dependent measures obtained, the frequency with which they were taken, and from whom they were obtained.

Table 4. Dependent Measures

<u>Dependent Measure</u>	<u>Frequency</u>	<u>Number</u>
Background questionnaire	Once	Entire company
Body Weight	5X (d1,2,4,6,7)	40 Volunteers/Co
Urine Sample	5X (d1,2,4,6,7)	40 Volunteers/Co
Ration/Water Consumption	Daily	40 Volunteers/Co
Acceptability Ratings	Every Meal	40 Volunteers/Co
Final Questionnaire	After Last Meal	Entire Company
Focus Groups	Once	10 Volunteers/Co

Background Questionnaire. Soldiers completed basic demographic information on this questionnaire (Appendix B) at the initial briefing.

Body Weight. In both companies, body weight measures were taken from the 40 volunteers on five days of the study according to the schedule in Table 4. Body weight was measured on battery operated SECA Compact, Floor Model Digital Scales (model 770). Wooden boards were used in the field to level the scales. Scales were professionally calibrated prior to the study and periodically checked at base camp using 25-pound weights. Data collectors used the same scales throughout the study to avoid any inconsistencies due to differences between the body weight scales. Soldiers were requested to remove items such as helmets, weapons, web-gear, and gas masks before being weighed and data collectors used a weight checklist (Appendix F) to note remaining garments such as BDU's, undergarments, and shoes.

Hydration Status. Urine samples were also collected on five occasions. Water intake (plain water, water added to the MRE, and T Ration beverages) was recorded throughout the study by soldiers on the daily MRE Intake Records (Appendix G) and by data collectors at the two T Ration meals. Hydration status was assessed by measuring the urine specific gravity (USG) of aliquots of the first voided urine of the morning with an American Optical Reichert Total Solids Meter (refractometer).

Ration Consumption. Daily consumption from all sources was measured for each of the 40 volunteers from the two companies. MRE intake was recorded with a daily MRE Intake Record (Appendix G) on which soldiers had been trained before the study began. MRE Intake Records were collected during breakfast each day along with all MRE leftovers and wrappers for later comparison to the daily logs. Data collectors reviewed the logs for completeness and resolved discrepancies between trash and the log by consulting with the subjects.

Prior to the field test, all food servers were trained to issue standard portion sizes of T Ration menu items. As each soldier was served, data collectors visually estimated portion sizes of the T Ration items. After each soldier had eaten, the data collector then visually estimated the amount of food leftover and all data was recorded on the T Ration Plate Waste form (see Appendix H). Previous studies have indicated that visual estimation of platewaste by trained data collectors is a reliable and valid method (Dubois, 1990; Rose & Carlson, 1986).

Ration Acceptability. The troops were asked to rate each menu item they tried on a standard 9-point hedonic scale where 1 corresponds to 'dislike extremely', 5 is 'neutral', and 9 corresponds to 'like extremely.' Troops were familiarized with this rating scale during the pre-test meeting with the data collectors. The same 40 volunteers in each company rated food acceptability of the MRE and T Ration on daily logs handed out at each meal (see Appendix I for sample forms).

Final Questionnaire. At the end of the study, the entire company completed a detailed questionnaire (Appendices J-K) to determine the strengths and weaknesses of the T Ration.

Flameless Ration Heater Questionnaire. A subset of soldiers also completed a questionnaire on the FRH (Flameless Ration Heater) used to heat MRE entrees (Appendix L). The questionnaire was developed by the Manprint office at Natick and has been used extensively in prior evaluations of the FRH.

Focus Group Discussion. A focus group was conducted during the last two days of the study with 10 enlisted soldiers from each company who volunteered to participate for approximately one hour. Groups sat in a cluster with an investigator who facilitated discussion of open-ended questions about the ration and encouraged all members to share their positive and negative reactions to the rations.

Results

Sample Demographics. Table 5 summarizes the demographic characteristics of the two companies in terms of average age, rank, length of service, height, weight, and region of origin. Chi-square and t-test analyses revealed that the two companies were similar on most of these dimensions. The mean age was about 23 years and approximately half of the participants in each group were enlisted men with a rank of E-3 or less. Forty-eight percent of the participants had served in the U.S. Army two and 1/2 years or less. The groups were similar in average height and weight. The highest percentage of subjects were from the North and South Central regions of the United States. More soldiers reported avoiding specific foods for medical or personal (e.g. religious or health concerns) reasons in the Control group (19.3%) than in the Test group (6.8%) [Chi Square=5.28, df=1, p<.05].

Table 5. Demographics for the Test and Control Groups*

<u>Group</u>	<u>Test</u>	<u>Control</u>
N	88	88
Age (yrs.)	23.8 (4.8) *	23.1 (4.6)
Length of Service (yrs.)	3.1 (3.1)	3.7 (3.9)
Height (in.)	70.1 (2.7)	70.3 (3.1)
Weight (lb.)	174.8 (26.6)	169.7 (21.2)
Trying to Lose Weight (%)	35.2	25.0
Trying to Gain Weight (%)	20.5	31.7
Food Avoidance (%)	6.8	19.3**
Ethnic Group (%)		
Caucasian	63.6	64.8
Afro-American	20.5	17.0
Hispanic	10.2	12.5
Other	5.7	5.6
U.S. Region of Origin (%)		
Northeast	4.5	1.1
Mid-Atlantic	10.2	13.6
South Atlantic	14.8	19.3
North Central	33.0	22.7
South Central	15.9	21.6
Mountain	3.4	5.7
Pacific	12.5	8.0
Other	4.5	4.5
Rank (%)		
E1 - E3	44.3	50.0
E4 - E6	50.0	44.2
E7 - E9	2.3	2.3
O1 - O4	3.4	4.5

* Numbers in parentheses are standard deviations.

** Food avoidance refers to avoiding foods for health or personal reasons; Chi-square (1, N=176) = 5.82.

Body Weight. Table 6 shows the subjects' body weights during the study and the amount of weight lost during the exercise. Initial body weight was higher in the Test group than the Control group, but this difference was not significant. Repeated measures analysis of covariance revealed a significant time by group interaction ($F(3,195) = 3.98, p < .01$) using day two body weight as covariate. Further analysis revealed this effect was due to a higher rate of weight loss in the Control group. Although the pattern of weight change was different in the two groups, average weight loss was small and did not differ between the groups (Table 6).

Office of the Surgeon General (OTSG) guidance suggests that troops should not lose more than 3% of their initial body weight during field operations. Both the Test and Control ration groups met this criterion; the mean percentage of weight loss was well below 3% (the Test group lost .51%, while the Control group lost 1.2%). There were some subjects in each group (7.7% of subjects ($n=3$) in the Test group, and 20.5% of the subjects ($n=8$) in the Control group) who lost 3% or more of their body weight during the field test. It should be noted however, that 4 of the 11 subjects who lost 3% or more of their body weight reported that they were trying to lose weight.

Table 6. Changes in Mean* Body Weight

	<u>Test Group</u>	<u>Control Group</u>
N	39	39
Initial weight (lb)	170.0 (26.6)	168.4 (24.6)
Final weight (lb)	170.0 (26.2)	168.4 (23.3)
Weight Loss (lb)	-.9 (1.8)	-2.1 (3.2)
Percentage Loss	-.5 (1.1)	-1.2 (1.9)

* Numbers in parentheses are standard deviations.

On average, both groups reported being moderately active throughout the study. Mean daily activity levels were similar for both groups except for day 6 when the control group was somewhat more physically active (moderate to heavy activity) than the test group (moderate activity) ($t(71) = 3.8, p < .01$).

Ration Consumption and Nutrient Intake. Calorie and nutrient intake were computed on the basis of the food intake records and the known caloric and nutrient composition of the rations. The separate nutrient intakes for each of the three meals were combined to calculate the average total nutrient intake per day for each ration group. Figure 1 presents total calorie intake for both ration groups across each of the six days of the study. The Control group consistently consumed more throughout the study; significantly more of the rations were consumed on days one ($t(67) = 4.46, p < .001$, two ($t(72) = 2.78, p < .01$), three ($t(75) = 5.59, p < .001$), four ($t(74) = 3.46, p < .001$) and six ($t(72) = 2.69, p < .01$). Table 7 shows the average daily intake of energy, macronutrients, micronutrients and the percentage of

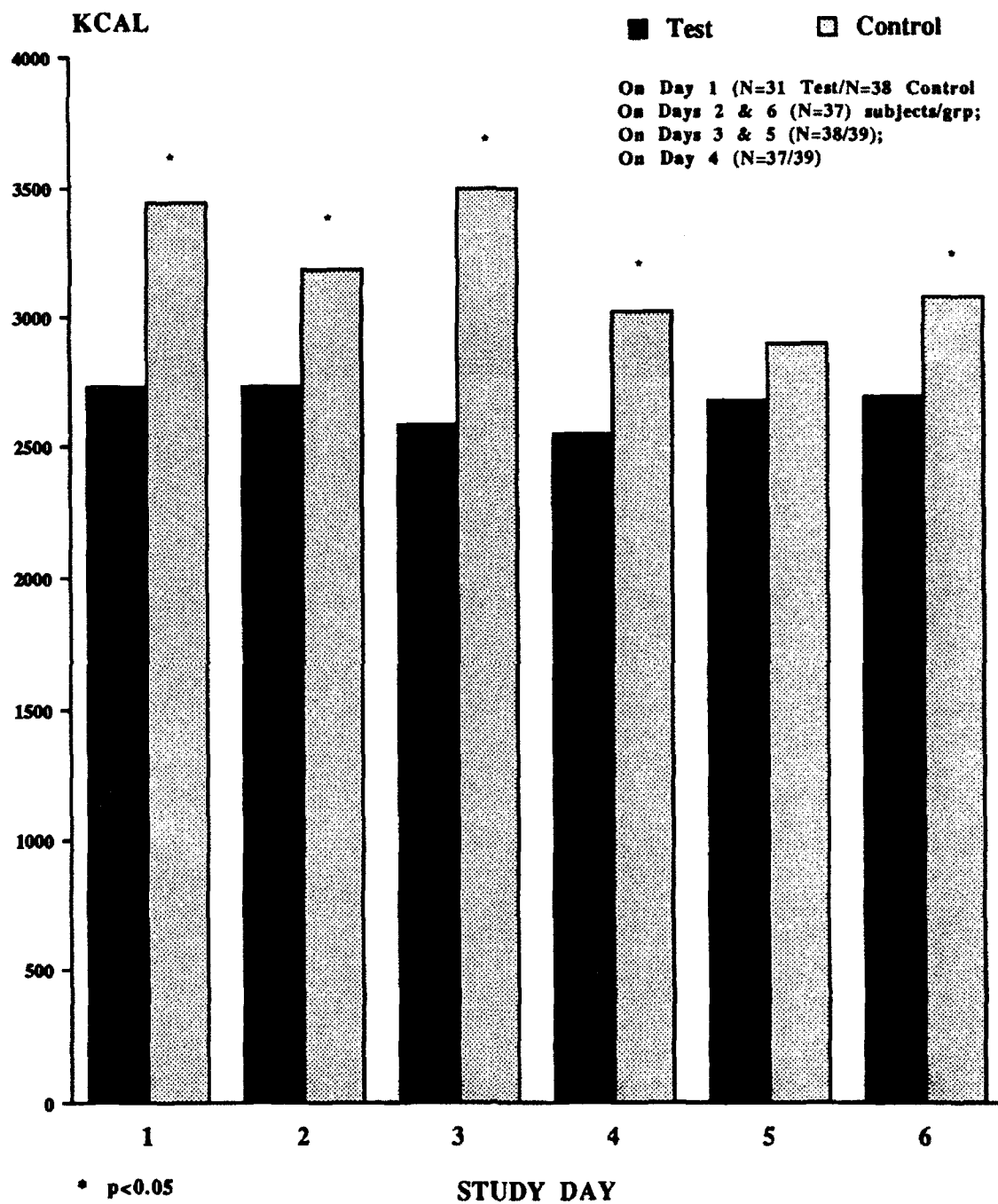


Figure 1. Total Energy Intake Across Days

Table 7. Average Daily Nutrient Intake Compared to MRDA

<u>Nutrient</u>	<u>Test</u>	<u>Control</u>	<u>t</u>	<u>df</u>	<u>MRDA</u>
Energy (kcal)	2657*	3174	4.37	76	2800
Protein (g)	119	144	5.24	76	100
Fat (g)	96*	117*	4.46	76	120
Carbohydrates(g)	335	391	3.42	76	330
Vitamin A (mcg RE)	5670	7351	3.57	76	5000
Thiamin (mg)	3.2	3.8	2.92	76	1.8
Riboflavin (mg)	2.71	3.28	4.30	76	2.2
Niacin (mg NE)	28.6	35.5	5.62	76	24
Vitamin B6 (mg)	3.69	5.00	3.82	76	2.2
Vitamin B12 (mcg)	2.22*	2.75*	5.05	76	3
Vitamin C (mg)	151	156	ns		60
Sodium (mg)	4765*	5701	4.76	76	5000
Potassium (mg)	3200	4157	6.08	76	1875
Iron (mg)	33.5	40.0	ns		18
Calcium (mg)	1140	1531	5.24	76	800
Phosphorus (mg)	1737	2175	4.87	76	800
Magnesium (mg)	261*	339*	5.68	76	400
Zinc (mg)	14.5*	15.7	2.09	76	15
Chlorine (mg)	8.41	9.57	3.39	76	-
Folacin (mcg)	303*	408	6.71	76	400
Vitamin E (mg)	13.8	14.6	ns		10
Cholesterol	414	456	ns		-
Ash	15.7	18.6	4.32	76	-
Protein Cal. (%)	17.8	18.1	ns		-
Fat Calories (%)	32.2	32.9	ns		40 max
Carbo. Cal. (%)	49.9	49.1	ns		50-55
Sodium (mg/1000kcal)	1806	1809	ns		1700 max

* Nutrient intake did not meet MRDA.

t value refers to significant difference between ration groups.

calories derived from protein, fat and carbohydrates for the two groups. Between group differences are noted, and intakes that fall below the MRDA requirements (Departments of the Army, the Navy, and the Air Force, 1985) are indicated by asterisks ($p < .05$; one-tailed t-test).

The average daily energy intake for the Control ration group (3174 kcal) was significantly higher than the energy intake (2657 kcal) of the Test group ($t(76) = 4.37$, $p < .0001$). Caloric consumption of the Control group exceeded the minimum MRDA for total energy intake under moderate work conditions in a temperate environment (minimum MRDA = 2800 kcal), while the Test groups' average daily energy intake fell below the minimum MRDA. Intake of grams of protein, carbohydrate, and fat were all significantly greater in the Control than the Test group. Although the daily mean intake in grams of fat was significantly below the MRDA for both ration groups, macronutrient consumption (protein, carbohydrate, and fat) as a percentage of calories

consumed was within recommended MRDA levels for both groups.

In general, intake of the micronutrients met the MRDA levels for both ration groups. Relative to the Test group, the Control group consumed more of all of the listed micronutrients with the exception of vitamin C, iron, and cholesterol. While similar amounts of vitamin B12 and magnesium were consumed by both ration groups, total intake of B12 and magnesium were below the recommended MRDA. In the Test group, zinc and folacin were also below MRDA.

Intake for T Ration Breakfast Menus. Table 8 summarizes the average nutrient intake of T Ration breakfast items for the Test and Control groups. On average, the Control group consumed 230 more calories during the breakfast meal than the Test group ($t(76)=4.68$, $p<.001$); their additional energy intake was comprised of more grams of protein ($t=4.26$), fat ($t=5.26$), and carbohydrate ($t=3.65$). However, when macronutrient breakdown is

Table 8. Average Nutrient Intake at Daily Meals

<u>Meal</u>	<u>Test</u>	<u>Control</u>	<u>t</u>	<u>df</u>
Breakfast T Ration				
Energy (kcal)	870	1100	4.68	76
Protein (g)	38	47	4.26	76
Fat (g)	28	38	5.26	76
Carbohydrates (g)	119	146	3.65	76
Protein Cal. (%)	17.5	16.8	ns	76
Fat Calories (%)	28.8	30.7	1.99	76
Carbo.Cal. (%)	53.7	52.5	ns	76
Dinner T Ration				
Energy (kcal)	912	1143	6.20	76
Protein (g)	43	57	8.16	76
Fat (g)	32	40	5.41	76
Carbohydrates (g)	115	141	4.76	76
Protein Cal. (%)	18.9	19.9	2.42	76
Fat Calories (%)	30.9	31.1	ns	76
Carbo.Cal. (%)	50.2	48.9	ns	76
Meal, Ready-to-Eat				
Energy (kcal)	876	931	ns	76
Protein (g)	38	40	ns	76
Fat (g)	36	39	ns	76
Carbohydrates (g)	101	105	ns	76
Protein Cal. (%)	17.9	17.1	ns	76
Fat Calories (%)	37	37.2	ns	76
Carbo.Cal. (%)	45.1	45.8	ns	76

examined in terms of percent of total calories consumed, there were no significant differences between groups.

Intake for T Ration Dinner Menus. Table 8 also shows that for the dinner T Ration, the Control group consumed 231 more calories per day on average than the Test group ($\bar{x}(76)=6.2$, $p<.001$). Relative to the Test group this increased consumption by the Control group was in the form of more grams of protein ($\bar{x}=8.16$), fat ($\bar{x}=5.41$), and carbohydrate ($\bar{x}=4.76$). A significantly greater percentage of calories as protein was consumed by the Control group than the Test group ($\bar{x}(76)=2.42$, $p<0.018$).

Intake for MRE Menus. Table 8 summarizes the average nutrient intake of MRE items for the Test and Control groups. Neither total energy intake nor macronutrient intakes differed between the two groups.

Hydration Status. Hydration status reflects the balance between the amount of body water lost in sweat, urine, feces and expired air and the total amount of water consumed from food, plain water and other beverages. Urine specific gravity (USG) measures concentrations of metabolites and other solutes in the urine, and is used as an indicator of hydration status. Hydration status was assessed on days 1, 2, 4, 6 and 7 by measuring urine specific gravity on first morning void urine samples.

Results of the mean daily USG are presented in Figure 2. Specific gravities above 1.030 are considered elevated, indicating that the individual is not optimally hydrated. Variations in specific gravity below this criterion indicate changes in hydration status but are considered within the normal range. Fully hydrated individuals have urine specific gravities in the range of 1.015 - 1.022 (Fischbach, 1984). There were no significant differences on any day between Test and Control groups. Mean USG for the total period of the study were identical (1.023) for both the Test and Control groups. The means for the two groups were not significantly different on any day, and the mean values were slightly above normal ranges but not indicative of hypohydration.

Water Intake. Total water intake for each person is composed of intake from three sources: the water contained in the food, the water added to food or beverage powders and the amount of plain water consumed. Table 9 shows the average daily water intake from each source and the total water intake for the two groups.

Relative to the Control group, the Test group drank more plain water and also added twice as much water to rehydrate MRE items. The higher levels of water in the food of the Control group reflect the fact that this group ate a larger quantity of the T Ration (breakfast and dinner) meals than the Test group. Although there was a trend toward greater total consumption of water by the Test group ($\bar{x}(57) = 1.92$, $p<.06$), this appears to be of little consequence as both groups were adequately hydrated when tested daily for urine specific gravity.

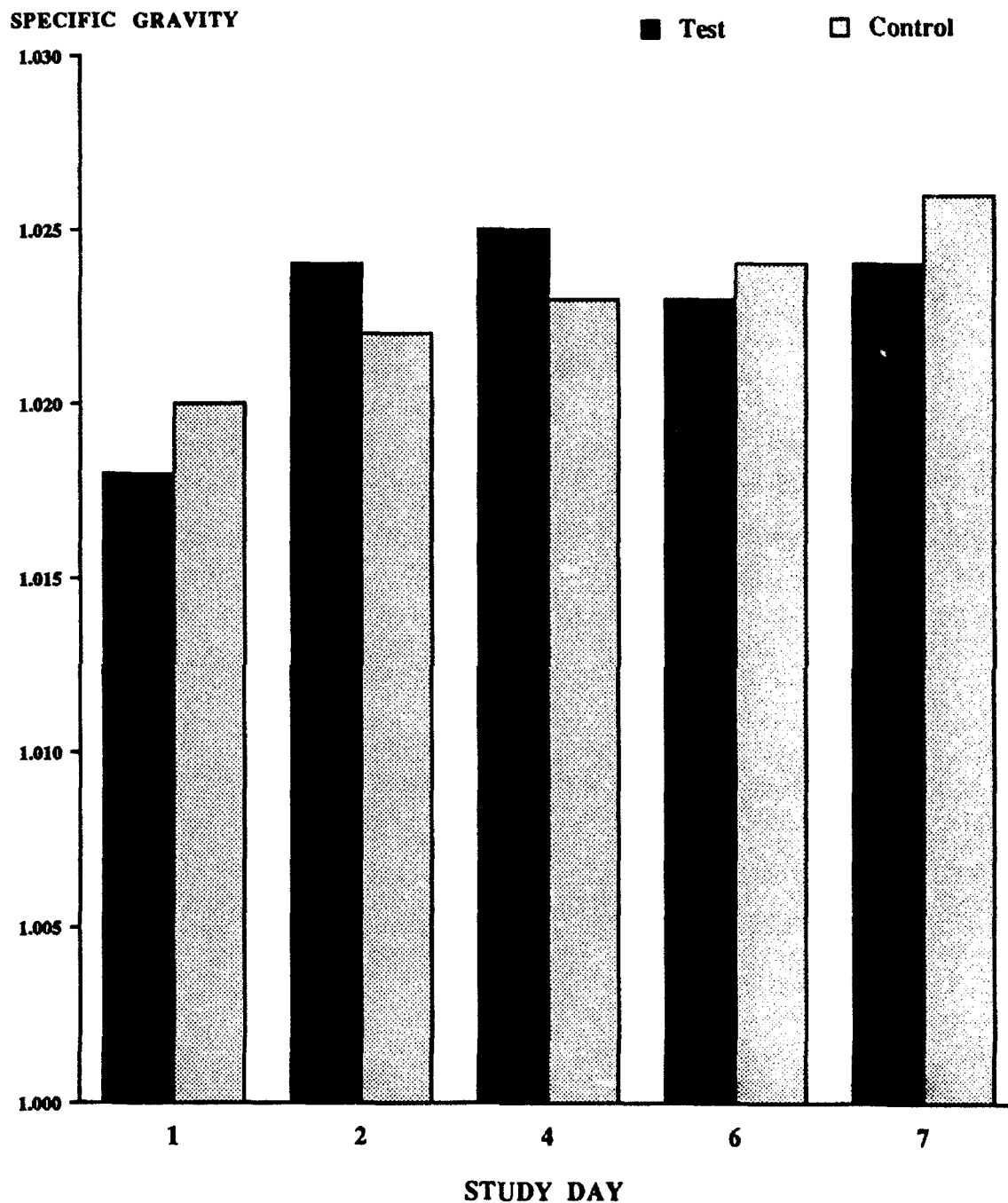


FIGURE 2. Urine Specific Gravity Across Days

On average, subjects in both the Test (N=80) and Control (N=83) groups reported that it was "neither easy nor difficult"

Table 9. Daily Mean Water Intake*

	<u>Test Group</u>	<u>Control Group</u>	<u>t</u>	<u>df</u>	<u>p</u>
<u>WATER SOURCE</u>					
Food (L)	1.52 (.38)	1.92 (.29)	5.37	76	0.01
Added to MRE (L)	.26 (.31)	.13 (.16)	2.43	76	0.02
Drinking (L)	2.93 (1.5)	2.02 (.73)	3.35	55	0.01
Total (L)	4.71 (1.8)	4.07 (.91)	1.92	57	0.06

* numbers in parentheses are standard deviations.

to obtain water. Five gallon cans were the most frequently used source for water in both the Test (86.3%) and Control (97.6%) groups. The Test group also reported obtaining water from a water buffalo.

Ration Acceptability. The average acceptance ratings of each food item (1="dislike extremely", 5="neither like nor dislike", and 9="like extremely") for the Test and the Control groups are shown in Tables 10 to 12 and reflect acceptance of the items as rated at the end of the exercise on the Final Questionnaire. There were some differences on mean acceptability ratings of foods common to both groups and these are noted with corresponding t values ($p < .05$). Acceptance ratings obtained in the field are shown in Appendices M-O, and as in previous studies, field ratings are higher than acceptance ratings based on the final questionnaire. Analyzable ratings for both the T Ration and the MRE meals are limited to those items which were consumed by 10 or more soldiers in either the Test or Control groups. A rating of 6.0 indicates that the item was "liked slightly"; for the purposes of evaluation and discussion this 6.0 rating was used as a pivotal criterion reflecting a "more positive than neutral" rating of food items.

Acceptability of the Breakfast T Rations. Of the 27 items in the Test breakfast T Ration, 63% (n=17) of the items received a rating of 6.0 or higher (liked slightly or better). The new cinnamon crumb cake as well as apple coffee cake, wheat/white bread, fruits and cereals were among the most popular items.

None of the test breakfast entrees were rated a 6.0 or greater. Most of the breakfast entrees were rated between 5.1 and 5.6 (above "neutral" but below "liked slightly") by the Test group. Of the two new breakfast entrees, only pork patties were rated above neutral (5.6), bread pudding and creamed chipped beef receiving the lowest ratings (3.5 and 4.5 respectively). Other items rated less than 6.0 included the biscuits, blueberry cake and white milk. The Test group did not receive sufficient oatmeal to provide reliable acceptability ratings. The low

Table 10. Final Questionnaire Acceptability of T Ration Breakfast Items

	<u>Test Group</u>		<u>Control Group</u>			
	MEAN	SD	MEAN	SD	t	df
ENTIREES						
Western Omelet	5.2	2.2	6.8	2.0	4.27	135
Omelet w\ Sausage and Potatoes	5.5	2.0	5.8	2.3	ns	-
Bread Pudding	3.5	2.5	4.5	2.8	2.10	115
Omelet w\ Bacon Pieces	-	-	6.2	1.8	-	-
Pork Patties*	5.6	2.4	-	-	-	-
Creamed Chipped Beef**	4.5	2.5	-	-	-	-
Creamed Ground Beef	-	-	5.4	2.5	-	-
Omelet w\ Bacon and Cheese	-	-	5.9	2.5	-	-
Potatoes w\ Bacon Pieces	5.1	2.4	5.9	2.1	-	-
Ham Slices	5.6	2.1	4.8	2.4	2.24	155
Pork Sausage Links	-	-	7.0	2.0	-	-
STARCHES						
Wheat Bread	6.7	1.9	7.3	1.8	ns	-
White Bread	6.5	1.9	7.2	1.6	2.41	154
Biscuits**	3.7	2.5	-	-	-	-
Apple Coffee Cake	6.1	2.4	5.9	2.5	ns	-
Blueberry Cake	5.3	2.5	7.3	2.1	5.31	150
Cinnamon Crumb Cake*	6.6	2.0	-	-	-	-
FRUITS						
Peaches in Syrup	7.1	2.0	7.8	1.4	2.36	114
Fruit Cocktail	7.3	1.7	7.8	1.3	2.00	149
Pears in Syrup	7.0	2.0	-	-	-	-
Apple	-	-	8.0	1.3	-	-
Pear	6.9	1.7	7.7	1.8	2.31	117
Banana	7.6	1.3	8.1	1.4	2.34	144
SPREADS						
Maple Syrup	6.2	2.0	7.1	2.0	ns	-
CEREALS						
Strawberry and Cream Oatmeal	-	-	6.5	2.2	-	-
Apple Cinnamon Oatmeal	-	-	8.0	1.5	-	-
Frosted Krispies	7.6	1.3	8.3	1.0	3.91	117
Corn Pops	7.7	1.6	7.9	1.2	ns	-
BEVERAGES						
Orange Juice	6.7	1.8	6.2	2.6	ns	-
Grape Juice	6.9	1.9	7.2	1.9	ns	-
White Milk	5.9	2.4	6.5	2.4	ns	-
Chocolate Milk	6.5	2.2	7.5	2.0	2.74	153
Coffee	6.8	2.4	7.4	2.2	ns	-
Cocoa	7.3	1.9	8.2	1.1	3.57	106

* Tray Pack Test Items

** Institutional Pouch Test Items

rating for the biscuits (3.7) by the Test group is noteworthy due to the fact that in a concurrently conducted MRE evaluation the same biscuit received an average rating of 6.6.

Of the 29 items in the Control breakfast T Ration, 75.9% (n=22) of the items received ratings of 6.0 or greater. The more acceptable items included western omelet, pork sausage links, omelet with bacon pieces, bread, blueberry cake, assorted fruits, maple syrup, cold cereals and oatmeal. Items rated below six included five of the entrees (omelet with sausage and potatoes, bread pudding, creamed ground beef, omelet with bacon and cheese, ham slices) and apple coffee cake.

Twenty-one breakfast items were rated by both groups. As shown in Table 10 ratings did not differ between the Test and Control groups ($p > .05$) for 9 of the foods. The Test group rated ham slices significantly higher than the Control group ($t(155)=2.24$, $p < .05$) while 10 items were rated significantly better ($p's < .05$) by the Control group (western omelet, bread pudding, white bread, blueberry cake, canned peaches and fruit cocktail, fresh pears and bananas, frosted krispies cereal, chocolate milk, and cocoa).

Acceptability of the Dinner T Rations. The Test group rated 76.5% of the T Ration dinner items (26 of 34) as "liked slightly" or better. Chicken breast patties, Oriental rice and marble crumb cake were popular choices among the new dinner items. Of the three new dinner entrees, only chicken breast patties were rated above 6.0. The other two new dinners both had ratings close to the 6.0 "liked slightly" rating. Chicken chow mein was rated 5.9. Boneless BBQ pork ribs (mean rating of 5.8) may have been affected by the less than full portion serving. As shown in Table 13, the Control group rated the T Ration dinner items more favorably than the Test group. Ninety percent (28 of 31) of the dinner items were rated as "liked slightly" or better by the control group.

Comparisons of the 24 items evaluated by subjects in both groups indicated that 11 did not differ significantly in acceptability ratings. Two items were preferred by the Test subjects (chocolate cake [$t(134)=4.09$, $p < .05$] and pound cake [$t(131)=4.69$, $p < .05$]), and 11 foods were rated significantly higher ($p's < .05$) by the Control subjects (lasagna, beef pot roast, turkey slices, white rice, wheat and white bread, beans with bacon sauce, fresh oranges and bananas, orange beverage, and peanut butter).

Acceptability of the Meal, Ready-to-Eat. Overall, the Control group rated MRE VIII items higher than the Test group. As shown in Table 12, both group's rated a majority of the items as at least like slightly. The Test ration group rated 75% of the items (21 of 28) a 6.0 or greater whereas the Control group rated 86% of the items (25 of 29) as 6.0 or greater. While the Test group did not rate any of the entrees above 6.0, the Control group rated half of the entrees above 6.0. Twenty-seven MRE items were rated by subjects in both groups. The Test group rated corned beef hash significantly higher ($t(131)=2.99$, $p < .05$)

Table 11. Final Questionnaire Acceptability of T Ration Dinner Items.

	Test Group		Control Group		t	df
	MEAN	SD	MEAN	SD		
ENTREES						
Lasagna	6.0	2.3	8.2	1.2	7.12	107
Beef Pot Roast	5.6	2.4	6.9	1.3	3.86	96
Hamburger	6.3	2.1	6.9	2.2	ns	-
Turkey Slices	6.9	1.7	7.5	1.2	2.47	140
Chicken Chow Mein*	5.9	2.5	-	-	-	-
Chicken Breast Patties*	6.4	2.2	-	-	-	-
Boneless BBQ Pork Ribs	5.8	2.3	-	-	-	-
Chicken Cacciatore	-	-	6.1	2.6	-	-
STARCHES						
White Rice	5.5	2.4	7.2	1.8	4.82	135
Potatoes w/ Butter Sauce	6.4	1.8	6.8	2.1	ns	-
Wheat Bread	6.9	1.8	7.8	1.4	2.86	128
White Bread *	6.7	1.7	7.4	1.7	2.20	156
Oriental Rice	6.6	2.3	-	-	-	-
Hamburger Roll	6.4	2.2	-	-	-	-
VEGETABLES						
Green Beans	5.5	2.4	5.8	2.5	ns	-
Beans w/ Bacon Sauce	6.0	2.1	6.8	1.9	2.07	104
Salad	7.1	1.8	7.2	1.7	ns	-
Mixed Vegetables	-	-	6.1	1.9	-	-
Corn	6.7	1.6	-	-	-	-
Pea and Carrots	4.3	2.7	6.1	2.3	-	-
FRUITS						
Fruit Cocktail	7.2	1.8	7.7	1.6	ns	-
Apple	7.3	1.6	7.8	1.5	ns	-
Orange	6.8	2.1	7.7	1.9	2.38	118
Pear	7.0	1.8	7.6	1.8	ns	-
Banana	7.5	1.5	8.2	1.2	3.18	143
DESSERTS						
Chocolate Cake	4.6	2.8	2.8	2.4	4.09	134
Round Cake	6.9	2.0	5.1	2.7	4.69	131
Marble Crumb Cake*	6.3	2.4	-	-	-	-
Chocolate Crumb Cake*	5.8	2.6	-	-	-	-
BEVERAGES						
Orange Beverage	6.2	2.4	7.2	1.4	2.82	111
White Milk	6.1	2.1	6.3	2.5	ns	-
Chocolate Milk	6.7	1.9	7.3	2.1	ns	-
Coffee	6.9	2.3	7.4	2.2	ns	-
Grape Beverage	-	-	7.3	1.6	-	-
SPREADS						
Peanut Butter	6.4	2.2	7.4	1.8	3.04	138
Jelly	6.8	1.7	7.3	1.9	ns	-
Cheese Spread	-	-	7.3	2.0	-	-
OTHER						
Ketchup	6.0	2.3	-	-	-	-
Thousand Island Dressing	-	-	7.1	2.0	-	-
French Dressing	-	-	7.2	1.7	-	-

* Tray Pack Test Items

Table 12. Final Questionnaire Acceptability of Meal,
Ready-to-Eat Items.

	<u>Test Group</u>		<u>Control Group</u>			
	MEAN	SD	MEAN	SD	t	df
ENTREES						
Corned Beef Hash	5.6	2.6	4.3	2.7	2.99	131
Chicken Stew	5.9	1.8	7.0	2.1	3.28	132
Omelet w/Ham	5.7	2.4	5.1	2.8	ns	-
Chicken a la King	5.0	2.5	6.2	2.2	3.01	127
Beef Stew	5.9	2.0	7.0	1.8	3.37	133
Meatballs, Rice and Sce	5.8	2.3	5.5	2.7	ns	-
STARCHES						
Crackers	6.4	1.9	7.0	1.7	2.04	159
Potato au Gratin	-	-	5.8	2.5	-	-
SPREADS						
Cheese Spread	6.2	2.6	7.8	1.6	4.46	119
Jelly	6.6	2.1	7.2	1.7	2.10	137
Peanut Butter	6.4	2.0	7.5	1.8	3.39	146
FRUITS						
Peaches	6.3	2.0	6.9	2.3	ns	-
Pears	6.3	2.1	6.9	2.4	ns	-
Fruit Mix	6.3	2.1	6.9	2.2	ns	-
DESSERTS						
Choc. Covered Cookie	6.8	2.0	7.7	1.4	3.09	128
Cherry Nut Cake	4.9	2.9	6.5	2.5	3.30	121
Oatmeal Cookie Bar	6.1	2.3	7.3	2.1	-	-
BEVERAGES						
Cocoa	7.5	1.6	8.3	1.0	3.96	115
Grape Beverage	6.6	2.0	7.7	1.3	3.59	119
Lemon-Lime Beverage	6.5	2.1	6.7	2.0	ns	-
Orange Beverage	6.4	2.2	7.3	1.4	2.65	111
CANDY						
M&M's	7.9	1.6	8.1	1.8	ns	-
Caramel	7.3	1.8	7.8	1.4	ns	-
Charms	7.4	1.7	7.5	1.9	ns	-
Gum	7.4	1.9	7.9	1.6	ns	-
OTHER						
Hot Sauce	7.3	2.3	7.9	1.5	ns	-
Cream Substitute	6.9	2.0	7.8	1.5	2.57	106
Sugar	7.2	2.0	8.1	1.3	2.97	111
Salt	6.5	2.3	7.2	1.8	ns	-

than did the control group, 12 items were not significantly different between the two groups, and 14 items were rated significantly higher ($p's < .05$) by the Control group (chicken stew, chicken a la king, beef stew, crackers, cheese spread, jelly, peanut butter, chocolate covered cookie, cherry nut cake, cocoa, grape and orange beverage bases, cream substitute, and sugar).

Acceptance Ratings by Meal Component. In general, the Control group rated the components of both T Ration meals and the MRE lunch more highly than the Test group. These comparisons for the Final Questionnaire ratings are shown in Table 13 (see Appendix P for field acceptability results). The breakfast T Ration entrees, starches, breakfast cakes, and fruits were rated higher by the Control group relative to the Test group. Similarly, the dinner T Ration entrees, starches, spreads, beverages, fruits, and other items (e.g. salad dressing, condiments) were rated higher by the Control group but the desserts were rated higher by the Test group ($t(160)=3.19$, $p < .05$). The Control group also gave significantly higher ratings to MRE starches, spreads, desserts, beverages, candies, and other supplemental items.

Flameless Ration Heater. The Flameless Ration Heater (FRH) was distributed for use to both companies (Test and Control ration groups) along with a questionnaire ($n=78$) which asked subjects to evaluate the FRH. The overall acceptability of the FRH was rated as "moderate to very good." Both groups reported that when the heaters were used, MRE rations reached warm to hot temperatures which resulted in improved taste ratings for both groups. Taste ratings increased to "moderately better" according to the Test group, and "much better" according to the Control group ($t(39)=3.37$, $p < .01$). The Control group also reported that the FRH was "very easy to use" while the Test group rated use of the FRH to be "moderately easy" ($t(50)=2.20$, $p < .05$).

Both groups felt that a "slight" problem in using the FRH was that it was "too hot to handle." The main reason for not using a FRH was the lack of time for meals provided by the mission. Sixty-two percent of the Control group ($n=24$) saw this as a problem, whereas most of the subjects in the Test group did not feel lack of meal time prevented the use of FRH ($t(49)=3.0$, $p=.004$). Otherwise, subjects reported they would "almost always" use a FRH if it were packaged with their MRE. If the FRH was not packaged with each meal, the subjects reported they would use the heaters whenever possible. Packaging of the FRH with each MRE was clearly preferred. When asked if they would save an unused FRH or throw it away, all of the subjects responded that they would save it for future use.

Final Questionnaire. As part of the final questionnaire, troops were asked to list foods, drinks, or condiments they would like added or dropped from the T-Rations. Of the soldiers receiving the Test ration, 52.7% ($n=39$) suggested that specific items should be dropped from the T Ration: bread pudding and peas and

Table 13. Final Questionnaire Acceptability of T Ration and MRE Components

	<u>Test Group</u>		<u>Control Group</u>			
	MEAN	SD	MEAN	SD	t	df
T RATION BREAKFAST						
Entrees	5.0	1.5	5.8	1.6	3.26	161
Starches	5.5	1.6	7.3	1.5	7.52	158
Desserts	6.0	2.1	6.8	2.1	2.45	115
Beverages	6.6	1.8	7.1	1.3	ns	-
Fruits	7.3	1.3	7.8	1.1	2.27	147
Cereals	7.6	1.3	8.1	1.0	2.53	139
Other	6.2	2.0	7.1	2.0	ns	-
T RATION DINNER						
Entrees	6.1	1.6	7.1	1.2	4.35	145
Starches	6.4	1.4	7.3	1.3	3.90	160
Desserts	6.0	1.8	5.0	1.9	3.19	160
Vegetables	6.0	1.5	6.4	1.5	ns	-
Beverages	6.6	1.5	7.1	1.3	2.47	158
Spreads	6.6	1.8	7.4	1.8	2.56	141
Fruits	7.2	1.3	7.8	1.2	2.92	160
Other	6.3	1.9	7.3	1.6	3.14	130
MEAL, READY-TO-EAT						
Entrees	5.8	1.7	6.0	1.6	ns	-
Starches	6.4	1.9	7.0	1.7	2.04	159
Spreads	6.4	1.8	7.5	1.4	4.48	146
Fruits	6.3	1.9	6.9	2.2	ns	-
Desserts	6.1	1.9	7.2	1.5	4.20	144
Hot Beverages	7.5	1.6	8.3	0.96	3.96	114
Cold Beverages	6.5	1.9	7.2	1.3	2.49	143
Candy	7.4	1.3	7.9	1.1	2.26	160
Other	7.0	1.6	7.7	1.3	2.94	148

carrots were the most frequently requested items to be dropped and this is reflected in low acceptability ratings. A total of 59.5% (n=47) of the Test subjects suggested additions to the T Ration, and they most frequently requested pizza and Mexican foods (e.g., burritos, enchiladas). In the Control group, 56.1% of the subjects (n=46) suggested some items be dropped from T Ration menus: chocolate cake, chicken cacciatore and bread pudding were most frequently mentioned. Over half of the subjects (63.4%; n=52) suggested specific foods to be added to the T Ration menu with pizza and burritos among the most frequently requested foods.

The Test and Control groups reported having similar amounts of time allotted for meals (25 and 27 minutes, respectively) and expressed similar preferences for the amount of time they would like to have for eating (32.5 and 35 minutes, respectively).

Portion size in both groups was generally seen as adequate,

with most ratings falling between "somewhat too small" and "just right" and ratings for each respective food group being similar. The only notable difference between groups was that the Test group rated the beverage portions served as slightly more adequate (2.3) than the Control group (1.9).

Focus Group Comments. Toward the end of this field study, a focus group from each company (10 soldiers apiece) met to discuss positive and negative impressions of the overall rations. The test group discussed their reactions to the new items in the T Ration breakfast and dinner menus.

Test Group. Foods recommended as additions to the breakfast T Ration included french toast, hash brown potatoes, bacon, muffins, butter and/or margarine. A preference for egg dishes mixed with cheese, but not meat, was expressed. The participants noted that the new breakfast items offered greater variety, but the entrees were often cold when served making them less appealing. The Test group commented that there was more variety in dinner T Ration items than is typically offered. Suggested additions to the dinner T Ration included pot roast with potato, ham with pineapple, broccoli with cheese or butter sauce, and more frequent and varied green vegetables. Many of the new T Ration dinner items were viewed positively, especially the BBQ Ribs, rolls, and cakes. Requests for the following additional items in the MRE and or T Ration were noted: meat lasagna, salted crackers, cold whole milk (instead of low-fat), instant iced tea, pepper, and larger portions of jelly, cheese spread and dehydrated fruits. A preference was expressed for more bread and less crackers to be included in the MRE.

Control Group. The Control group's overall impressions were that the T Rations were "good except for the cakes." Foods recommended as additions to the breakfast T Ration included french toast, pancakes, poptarts, grits, and shelf-stable butter. As in the Test group, soldiers stated a preference for egg dishes not mixed with meat. Suggested additions to the dinner T Ration included a greater variety of vegetables (e.g. corn, baked beans, spinach) and more pasta entrees. Requests for the following additional items in the MRE were noted: tea, salted crackers, pepper, larger servings of cheese spread, jelly and beverage base in each MRE. A preference for candy and hot sauce in every meal was also expressed. Soldiers in both groups noted that the T Rations were served cool to lukewarm in temperature which is likely to have led to somewhat lower acceptability ratings (Lester and Kramer, 1991). Soldiers also reported running out of accompanying items (e.g., coffee, cocoa, juice). Another problem noted by soldiers in the control group was that due to distribution problems there was not much variety in the foods offered. Both groups further noted the lack of variety in MRE's (only six of the 12 menus were typically available).

Participants in both groups expressed enthusiasm regarding the Flameless Ration Heater's ability to heat food efficiently

and, as previously noted, requested that the FRH be included with all MRE's. In general, participants stressed the importance of receiving hot food and having a greater variety of foods available (including more vegetables and pasta dishes).

Conclusions and Recommendations

The overall results of the present study did not show an advantage in terms of ration acceptability or consumption for the Test group receiving the newer T Ration menus. The Control group consistently consumed more total calories and rated the rations higher. The Test group's lower levels of energy intake and ration acceptability cannot be attributed to soldiers' responses to the new T Ration menus given that this group's consumption and acceptability ratings were consistently lower across most of the food types for both the breakfast and dinner menus. It was further noted that, in general, the Test group rated the MRE items lower than the control group despite consuming comparable amounts of the MRE lunch meal relative to the control group.

Both groups generally performed well in terms of meeting the Surgeon General's Military Recommended Dietary Allowances (MRDA). In the current study, average total calorie intake for both groups was 2915 Calories, and this amount is comparable to the average of 2884 Calories found in the previous field study of the original FY90 T Ration (Salter et al., 1991). In the present study, energy intake in the Test group (2657 Calories per day) was slightly below the MRDA minimum of 2800 Calories per day, while the Control group consumed well over the minimum MRDA for total energy intake (3174 Calories). Both the Test and Control groups met most of the remaining nutrient requirements. As is the typical result in field tests of rations (Edwards et al., 1989; Popper et al., 1987; Salter et al., 1991), intake deficiencies were not due to any lack of availability but rather to underconsumption by soldiers.

Further support for the generally adequate intake of foods and beverages is provided by the fact that actual loss of body weight was minimal and hydration, as indexed by urine specific gravity, was adequate.

Although the results support the need for additional efforts to enhance consumption and acceptability of rations in field settings, the current study is consistent with past studies (e.g., Salter et al., 1991) in suggesting that intake is generally better when soldiers are fed a meal cycle of two T Rations and one MRE per day versus three MRE's daily even though both rations are nutritionally adequate and of similar acceptability.

T Ration items were typically rated as more acceptable by the Control group relative to the Test group. On average, the 10 new ration items issued to the Test group received acceptability ratings in the same range as the other T Ration components. However, half of the new items were among the highest rated items in their respective food categories (e.g. pork patties were the highest rated breakfast entree by the Test

group). The majority of T Ration items served were liked slightly or better, but the results are consistent with past studies indicating that room for improvement, especially in breakfast entrees, continues to exist. T Ration acceptability ratings in this field test were generally comparable to or higher than those obtained in Salter et al. (1991). Based on soldiers' comments, it is clear that readily identifiable solid meat entrees such as chicken patties, pork ribs, and hamburgers are a welcome improvement relative to the casserole type entrees which have historically predominated. Soldiers also expressed a desire for more ethnic foods such as pasta dishes and Mexican foods, as well as more variety in vegetable side dishes.

The two study groups consumed similar amounts of the MRE although the Control group rated the MRE items as somewhat more acceptable. Interestingly, despite the fact only six of the 12 MRE menus were available throughout the evaluation, this significant reduction in variety did not lead to noticeably lower acceptability ratings relative to other ration test results (e.g. Salter et al., 1991). The Flameless Ration Heater was a clear success and viewed by soldiers as a strong positive addition to operational rations such as the MRE.

The consistency in consumption in the present and most recent previous T Ration study (Salter et al., 1991) is encouraging. Further study and ration reformulations are warranted to improve consumption and, in particular, acceptability of the T Ration. Data collected from current and past studies on the latest T Ration formulations confirm that it is a relatively reliable means for meeting the soldiers' nutritional needs. Future studies comparing T Ration versions could benefit from ensuring distribution of menu items as actually planned so as to obtain an accurate evaluation of the ration as a whole.

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APPENDIX A. Volunteer Agreement Affidavit

Appendix A

VOLUNTEER AGREEMENT AFFIDAVIT

For use of this form, see AR 70-25, the proponent agency is OTBG

PRIVACY ACT OF 1974

Authority: 10 USC 3013, 44 USC 3101, and 10 USC 1071-1087

Principle Purpose: To document voluntary participation in the Clinical Investigation and Research Program SSN and home address will be used for identification and locating purposes

Routine Uses: The SSN and home address will be used for identification and locating purposes. Information derived from the study will be used to document the study, implementation of medical programs, adjudication of claims, and for the mandatory reporting of medical conditions as required by law. Information may be furnished to Federal, State and local agencies

Disclosure: The furnishing of your SSN and home address is mandatory and necessary to provide identification and to contact you if future information indicates that your health may be adversely affected. Failure to provide the information may preclude your voluntary participation in the investigational study

PART A(1) - VOLUNTEER AFFIDAVIT

Volunteer Subjects in Approved Department of the Army Research Studies

Volunteers under the provisions of AR 40-38 and AR 70-25 are authorized all necessary medical care for injury or disease which is the proximate result of their participation in such studies.

I, _____, SSN _____,

having full capacity to consent and having attained my _____ birthday, do hereby volunteer/give consent as legal representative for _____ to participate in _____

Consumption and Acceptance of the T-ration with and without Proposed new menu items.
(Research study)

under the direction of Dr. Matthew Kramer

conducted at Pohakuloa Training Area, Hawaii

(Name of Institution)

The implications of my voluntary participation/consent as legal representative; duration and purpose of the research study; the methods and means by which it is to be conducted, and the inconveniences and hazards that may reasonably be expected have been explained to me by

Contact telephone(s): Dr. Kramer 508-651-4427; US Army Natick RD 6 E Center

I have been given an opportunity to ask questions concerning this investigational study. Any such questions were answered to my full and complete satisfaction. Should any further questions arise concerning my rights/the rights of the person I represent on study-related injury, I may contact

Office of Chief Counsel

at US Army Natick Research, Development and Engineering Center (508)651-4322

(Name Address and Phone Number of Hospital (Include Area Code))

I understand that I may at any time during the course of this study revoke my consent and withdraw/have the person I represent withdrawn from the study without further penalty or loss of benefits; however, if the person I represent may be required (military volunteer) or requested (civilian volunteer) to undergo certain examination if, in the opinion of the attending physician, such examinations are necessary for my/the person I represent's health and well-being. My/the person I represent's refusal to participate will involve no penalty or loss of benefits to which I am/the person I represent is otherwise entitled.

PART A (2) - ASSENT VOLUNTEER AFFIDAVIT (MINOR CHILD)

I, _____, SSN _____, having full

capacity to consent and having attained my _____ birthday, do hereby volunteer for _____

to participate in _____

(Research Study)

under the direction of _____

conducted at _____

(Name of Institution)

(Continue on Reverse)

PART A(2) - ASSENT VOLUNTEER AFFIDAVIT (MINOR CHILD) (Cont'd.)

The implications of my voluntary participation; the nature, duration and purpose of the research study; the methods and means by which it is to be conducted; and the inconveniences and hazards that may reasonably be expected have been explained to me by

I have been given an opportunity to ask questions concerning this investigational study. Any such questions were answered to my full and complete satisfaction. Should any further questions arise concerning my rights I may contact

at

(Name, Address, and Phone Number of Hospital (Include Area Code))

I understand that I may at any time during the course of this study revoke my assent and withdraw from the study without further penalty or loss of benefits; however, I may be requested to undergo certain examination if, in the opinion of the attending physician, such examinations are necessary for my health and well-being. My refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled.

PART B - TO BE COMPLETED BY INVESTIGATOR

INSTRUCTIONS FOR ELEMENTS OF INFORMED CONSENT (Provide a detailed explanation in accordance with Appendix E, AR 40-38 or AR 70-25.)

The purpose of this study is to evaluate the T-ration for intake and acceptance in a field training environment. The study will take place for 7 days during your field training exercises at the Pohakuloa Training Center in Hawaii. If you are one of the forty volunteers from your company, you will be asked to rate the acceptability of two T-ration meals (breakfast and dinner) and an MRE lunch each day. You will be asked to consume and rate the acceptability of the items served at these meals by circling numbers corresponding to your attitudes on a one-page form. You may eat as little or as much as you choose. In order to better evaluate the T-ration, we request that all soldiers refrain from eating any foods other than the rations provided. The investigators will meet with the 40 volunteers at breakfast and at dinner to estimate the amount of food consumed at these meals and to collect ratings of the meals. For the MRE lunch, the volunteers will be provided with a one-page form on which to record intake and opinions of the ration. You will also be issued a plastic bag to collect food wrappers, leftover food, etc. which we will collect each day. Volunteers will be weighed five times throughout the evaluation and will also be asked to provide a urine sample five times during the course of the evaluation. The results of this urine test will be used only

I do ☐ do not ☐ (check one & initial) consent to the inclusion of this form in my outpatient medical treatment record.

SIGNATURE OF VOLUNTEER	DATE	SIGNATURE OF LEGAL GUARDIAN (if volunteer is a minor)	
PERMANENT ADDRESS OF VOLUNTEER	TYPED NAME OF WITNESS		
	SIGNATURE OF WITNESS		DATE

as one measure of your water and beverage intake. On the evening before these tests you will be issued a small plastic bottle. When you wake up the next morning you should fill the bottle with your first urination of the day, then bring it with you when the data collectors arrive for the morning meal. When you are weighed, you should remove your gear and equipment before getting on the scale.

The estimated time required per day for this evaluation is about ten minutes at breakfast and dinner. At the beginning and end of the study the entire company will be asked to complete questionnaires requiring approximately 45 minutes. In addition, 10 of the forty volunteers in each company will be recruited to participate in an hour long focus group during which you are encouraged to give more detailed opinions of the rations.

This study should produce no additional discomfort for you beyond whatever you would normally encounter during scheduled field exercises. Although this study will have no direct benefit for you, your participation will provide important information on improving T-ration feeding. You have the right to withdraw from the study at any time, however this will not end your participation in the field exercise or change your access to field dining facilities or the rations being provided. You will receive a copy of this consent form and you are encouraged to ask any questions you may have.

You may request to see your own results or you may request to see the final report of the study. All data and information obtained about you as an individual will be considered privileged and held in confidence. Complete confidentiality cannot be promised, particularly to subjects who are military members, because information bearing on your health may be required to be reported to appropriate medical or Command authorities, and applicable regulations note the possibility that USAMRDC officials may inspect the records.

Thank you for your help.

SIGNATURE OF VOLUNTEER	DATE SIGNED	SIGNATURE OF LEGAL GUARDIAN (if volunteer is a minor)
PERMANENT ADDRESS OF VOLUNTEER	TYPED OR PRINTED NAME AND SIGNATURE OF WITNESS	DATE SIGNED

APPENDIX B. Background Questionnaire

TRAY RATION EVALUATION

Background Information

Please answer the following questions for our records. All of the information you provide will be kept confidential. This information is necessary in order to provide a combat ration that will meet everyone's needs. Thank you!



Proper Mark

1. Your name: _____
2. Last four digits of your Social Security Number: _____
3. What is your rank: E-_____ W-_____ O-_____
4. Your Company: _____ Platoon: _____
5. What is your gender? ☐ Male ☐ Female
6. What was your age at your last birthday? _____
7. How long have you been in the Army? _____ years _____ months
8. What is your height? _____ ft _____ in
What is your weight? _____ lbs
9. Are you currently trying to lose weight? ☐ YES ☐ NO
10. Are you currently trying to gain weight? ☐ YES ☐ NO
11. Which ethnic group do you belong to? (fill in appropriate circle)

- ☐ 1. American Indian/Alaskan Native
- ☐ 2. Asian/Pacific Islander
- ☐ 3. Black
- ☐ 4. Hispanic
- ☐ 5. White, not of Hispanic origin
- ☐ 6. Other (please specify) _____

DO NOT WRITE BELOW THIS LINE

GROUP ☐ A ☐ B

SUBJ									

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E									
O									
WO									

1 2 3 4 5 6 7 8 9

C ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
P ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

0 1 2 3 4 5 6 7 8 9

AGE ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

0 1 2 3 4 5 6 7 8 9

YEAR ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

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11. ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

0 1 2 3 4 5 6 7 8 9

12. In what part of the country did you live the longest before age 16? (fill in appropriate circle)

- ☐ 1. New England (ME, NH, VT, MA, CT, RI)
☐ 2. Middle Atlantic (NJ, NY, PA)
☐ 3. South Atlantic (DE, MD, VA, WV, NC, SC, GA, FL, DC)
☐ 4. North Central (OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS)
☐ 5. South Central (KY, TN, AL, MS, AR, LA, OK, TX)
☐ 6. Mountain (ID, WY, CO, MT, AZ, NM, UT, NV)
☐ 7. Pacific (WA, OR, CA, AK, HI)
☐ 8. Other (please specify) _____

13. Do you have any food allergies or avoid any food due to medical or personal reasons? ☐ YES ☐ NO

If YES, please list the foods and why you avoid them: _____

APPENDIX C. Nutrient Information for the Current T Ration

Appendix C

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

01/26/89

TOTALS
BREAKFAST

DAY

	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
1	585.48	48.37	38.70	12.34	528	1046	7.79	2382	2585	180	4.05	5.88	288
2	482.59	63.26	57.32	12.14	501	1008	10.77	2885	1774	168	4.60	10.08	408
3	547.58	54.66	28.28	10.64	508	926	9.75	2227	1821	131	3.51	5.47	193
4	511.89	49.67	68.74	10.58	461	833	7.16	2320	1708	112	3.97	4.71	300
5	580.34	59.90	45.30	13.31	562	1123	9.73	2791	2658	180	4.85	10.53	290
6	542.08	50.70	65.13	11.67	510	865	8.71	2630	1803	122	4.37	3.10	303
7	531.26	63.50	42.46	11.42	492	985	8.28	2502	2266	167	4.32	8.39	426
8	600.63	49.47	33.25	11.20	463	902	8.15	2081	2100	178	3.18	8.60	77
9	530.61	54.93	33.59	10.66	481	864	7.04	2296	1775	125	3.92	5.59	327
10	427.80	58.68	61.98	11.91	519	1121	9.97	2324	2155	160	3.70	4.16	316
MEAN	534.03	55.31	47.48	11.59	502	967	8.73	2444	2064	152	4.05	6.65	293

MEAL REQUIREMENTS

1/3 AR 40-25

5.0

36

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
1	3600	.047	3680	119	1.52	1.15	10.8	1.05	131	1.78	8.89	205.09	1362	890
2	2590	.033	2650	43	1.32	1.30	8.8	.91	88	2.28	7.08	227.02	1677	842
3	3090		3090	116	1.54	1.29	11.2	1.05	76	1.44	4.58	216.13	1338	855
4	3620	.034	3680	118	1.32	1.11	9.6	.88	70	2.64	4.61	127.20	1326	768
5	3060	.085	3190	116	1.36	1.24	11.0	1.04	100	2.55	6.31	187.98	1399	887
6	3420	.034	3480	118	1.37	1.24	9.8	.90	107	2.48	8.43	181.83	1516	851
7	3300	.036	3360	116	1.57	1.20	8.7	1.09	88	1.46	4.69	170.20	1317	817
8	2110	.010	2130	46	1.32	.99	10.6	.95	84	2.12	3.42	229.73	1416	924
9	3420	.034	3480	118	1.40	1.17	9.8	1.03	111	1.78	7.15	127.75	1033	755
10	3150	.013	3170	113	1.55	1.39	9.0	.86	95	2.48	4.87	183.54	1527	744
MEAN	3136	.036	3191	102	1.43	1.21	9.9	.98	95	2.10	6.00	185.65	1391	833

MEAL REQUIREMENTS

1/3 AR 40-25

1200

PERCENT OF CALORIES FROM:
 PROTEIN - 16 PERCENT
 FAT - 31 PERCENT
 CHO - 53 PERCENT

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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TOTALS DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
DAY													
1	614.38	69.25	52.47	10.50	476	911	6.60	2295	1950	208	3.76	4.88	96
2	641.39	47.42	29.92	10.51	967	833	7.95	1839	1363	175	3.23	7.18	54
3	628.64	80.52	48.43	11.50	467	1042	14.49	2648	1896	214	4.81	10.08	127
4	715.99	57.29	50.72	10.54	726	980	8.78	2876	1633	153	5.17	3.12	77
5	625.37	59.46	36.46	10.22	480	737	8.94	2131	1562	164	3.68	9.75	130
6	747.15	67.24	39.17	11.41	521	740	9.21	2393	2158	228	4.57	6.64	125
7	607.85	65.46	49.08	11.02	721	1106	11.91	2310	2074	145	3.32	3.86	72
8	615.16	66.60	65.14	11.11	478	922	12.49	3338	2080	194	6.45	9.57	136
9	709.47	66.38	68.91	10.30	482	804	9.55	2368	1791	179	4.35	5.99	81
10	669.75	61.64	37.50	11.25	460	867	11.23	2763	1732	204	4.95	8.63	87
MEAN	657.51	64.13	47.78	10.84	578	894	10.12	2496	1824	186	4.43	6.97	99

MEAL REQUIREMENTS

1/3 AR 40-25

5.0

133

625-1825

6.0

267

267

267

267

267

267

267

267

267

267

267

267

A	CAROTENE	TOTAL A	C	B1	B2	NIACIN	B6	FOLACIN	B12	E	CHO	CALORIES	WEIGHT (G)
(IU)	(MG)	(IU)	(MG)	(MG)	(MG)	(MG)	(MG)	(MCG)	(MCG)	(MG)	(G)		
1	1310	2910	55	.89	1.04	26.4	.73	104	1.27	7.80	205.16	1570	952
2	1650	2990	56	.90	1.11	7.1	.44	156	1.34	3.22	172.72	1150	902
3	1380	6840	53	1.18	1.29	20.7	.56	114	2.07	4.36	203.69	1573	973
4	940	11300	40	1.06	1.40	13.4	.45	126	2.30	3.57	212.87	1537	1047
5	2000	8060	53	.82	.94	12.1	.40	131	1.66	3.49	168.86	1241	900
6	2190	3200	53	.77	1.06	18.5	.48	208	1.30	2.93	192.33	1391	1057
7	4210	4210	62	1.65	1.12	12.5	1.61	62	.83	.72	171.68	1390	905
8	1310	1600	53	1.16	1.13	17.4	.46	116	2.36	5.08	226.89	1760	985
9	2000	7700	53	.92	1.09	21.0	.50	122	1.49	7.61	204.62	1704	1060
10	1500	11720	55	1.17	1.05	15.2	.48	107	1.66	4.32	226.88	1492	1007
MEAN	1849	2.805	53	1.05	1.12	16.4	.61	124	1.63	4.31	198.57	1481	979

MEAL REQUIREMENTS

1/3 AR 40-25

1200

133

146.7

3.3

1.0

1.0

0.73

0.73

0.73

0.73

0.73

0.73

0.73

0.73

0.73

0.73

PERCENT OF CALORIES FROM:
 PROTEIN - 17 PERCENT
 FAT - 29 PERCENT
 CHO - 54 PERCENT

: 01/26/89

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

DAY 1 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
WEST OMELET	113.31	16.24	17.62	3.10	77	249	2.39	945	304	24	2.20	1.61	251
POTATO/BACON	107.53	9.51	7.29	2.72	28	165	1.06	688	534	30	1.48	1.57	19
PEACHES	131.03	.74	.17	.40	5	18	.45	10	152	8		.15	
OAT/APPLE/CN	3.78	5.27	2.98	1.07	23	191	1.05	136	500	46	.16	1.20	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2	.21		
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17			
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	585.48	48.37	38.70	12.34	528	1046	7.79	2382	2585	180	4.05	5.88	288

28

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
WEST OMELET	570	.034	630	2	.13	.32	2.4	.14	55	.64	6.75	10.38	265	161
POTATO/BACON				5	.11	.11	3.9	.14	16	.16	.79	30.44	225	158
PEACHES	550		550	5	.02	.03	1.0	.03	5			32.94	136	165
OAT/APPLE/CN	180	.013	200		.18	.04	.4	.04	11		1.20	46.90	235	60
BREADWHITE				79	.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	24	.15	.05	.6	.57	2	.15	.15	19.56	88	22
COCOA BEV PD	1470		1470	8	.66	.06	.1	.00				15.01	97	22
COFFEE INSTA				2	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT	460		460	2								10.89	113	227
SUM	3600	.047	3680	119	1.52	1.15	10.8	1.05	131	1.78	8.89	205.09	1362	890

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 2 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
OMLT/SAUSPOT	107.52	19.39	23.50	2.80	55	183	2.59	1038	231	19	2.38	3.21	350
CR GR BEEF	123.67	18.33	12.51	2.28	13	124	2.54	598	260	20	1.31	4.91	39
OAT/STRAWBER	3.61	4.87	2.57	1.15	20	183	.95	142	273	39	.13	.80	
BLUEBRY CAKE	16.92	4.43	8.22	1.17	20	102	1.47	477	95	7	.55	.00	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
GRAPE JUICE	1.25	.75	.25	.45	18	23	.75	30	199	13	.02		
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	482.59	63.26	57.32	12.14	501	1008	10.77	2885	1774	168	4.60	10.08	408

A	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
OMLT/SAUSPOT	.022	520		.10	.31	1.3	.11	21	.32	3.21	7.44	319	161
CR GR BEEF				.02	.16	2.9	.07	10	.98	1.15	7.01	214	164
OAT/STRAWBER	.010	200		.17	.04	.3	.03	12		1.32	47.81	234	60
BLUEBRY CAKE				.03	.14	1.3	.01	2		1.25	52.60	302	83
BREADWHITE				.19	.16	1.8	.02	30			37.88	199	75
GRAPE JUICE			9	.06	.05	.4		2		.15	47.30	194	50
COCOA BEV PD		1470	24	.66	.06	.1	.57		.15		15.01	97	22
COFFEE INSTA		460	8	.00	.00	.4	.00				1.10	4	1
MILK LOWFAT			2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	.033	2650	43	1.32	1.30	8.8	.91	88	2.28	7.08	227.02	1677	842

WJ
O
CR GR BEEF
OAT/STRAWBER
BLUEBRY CAKE
BREADWHITE
GRAPE JUICE
COCOA BEV PD
COFFEE INSTA
MILK LOWFAT

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

01/26/89

DAY 3 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
BRDPDG/M/HAM	98.29	12.51	7.05	1.88	62	176	2.47	572	248	21	1.38	1.50	117
MAPLE SYRUP	6.72	.00	.00	.20	13	4	1.15	19	1				
HAM SLICES	56.43	21.35	5.16	2.11	4	175	1.35	738	224	21	1.50	2.49	58
FRUIT COCKTL	133.93	.65	.12	.38	10	18	.48	10	147	8		.13	
APL COFFE CK	22.36	3.56	5.31	1.03	25	131	1.45	286	106	9	.41	.00	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2	.21		
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17			
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	547.58	54.66	28.28	10.64	508	926	9.75	2227	1821	131	3.51	5.47	193

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
BRDPDG/M/HAM	450		450		.19	.28	3.1	.09	23	.30	2.40	30.27	235	150
MAPLE SYRUP						.00	.0	.00	0			21.08	84	28
HAM SLICES					.17	.17	3.2	.17	7	.17	.25	.00	132	83
FRUIT COCKTL	340		340	3	.03	.03	.6	.08				31.50	130	167
APL COFFE CK					.06	.15	1.1	.02	2		1.78	48.84	257	61
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6	.57	2	.15	.15	19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.00				15.01	97	22
COFFEE INSTA				8		.00	.4	.00				1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	3090		3090	116	1.54	1.29	11.2	1.05	76	1.44	4.58	216.13	1338	855

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 4 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
OMELET/BACON	100.04	19.65	29.45	3.18	48	320	2.31	1112	304	21	2.35	3.21	247
BRKF SAUS DR	50.98	12.69	28.49	1.95	13	74	1.56	596	157	11	1.41		34
PEACHES	131.03	.74	.17	.40	5	18	.45	10	152	8		.15	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.58	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	511.89	49.67	68.74	10.58	461	833	7.16	2320	1708	112	3.97	4.71	300

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
OMELET/BACON	770	.034	830		.11	.34	3.5	.13	19	.80	4.18	8.34	377	161
BRKF SAUS DR	550		550	5	.11	.11	1.9	.03	2	.86	.29	1.49	313	96
PEACHES					.02	.03	1.0	.03	5			32.94	136	165
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6					19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.57	2	.15	.15	15.01	97	22
COFFEE INSTA				8		.00	.4	.00				1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	3620	.034	3680	118	1.32	1.11	9.6	.88	70	2.64	4.61	127.20	1326	768

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

01/26/89

DAY 5 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
OMEL/BCN CHZ	101.48	19.76	26.72	3.53	120	341	2.33	1144	288	22	2.20	3.21	252
BEEF HASH	112.68	17.70	4.69	3.40	9	162	3.18	923	599	32	2.21	4.63	20
PEARS	132.80	.33	.21	.25	8	12	.36	8	107	7		.13	
OAT/MAPLE/BS	3.54	5.51	3.04	1.08	29	187	1.01	113	569	47	.22	1.20	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	580.34	59.90	45.30	13.31	562	1123	9.73	2791	2658	180	4.85	10.53	290

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
OMEL/BCN CHZ	580	.032	630		.06	.37	2.7	.11	19	.80	3.53	9.16	356	161
BEEF HASH		.039	60	2	.00	.15	4.3	.19	19	.77	1.54	15.88	177	154
PEARS	180			2	.02	.03	.4	.02	2			31.68	130	165
OAT/MAPLE/BS		.014	200		.19	.05	.4	.04	16		1.08	46.83	237	60
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6					19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.57	2	.15	.15	15.01	97	22
COFFEE INSTA				8		.00	.4	.00				1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	3060	.085	3190	116	1.36	1.24	11.0	1.04	100	2.55	6.31	187.98	1399	887

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DAY 6 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
WEST OMELET	113.31	16.24	17.62	3.10	77	249	2.39	945	304	24	2.20	1.61	251
BRKF SAUS DR	50.98	12.69	28.49	1.95	13	74	1.56	596	157	11	1.41		34
PEACHES	131.03	.74	.17	.40	5	18	.45	10	152	8		.15	
BLUEBRY CAKE	16.92	4.43	6.22	1.17	20	102	1.47	477	95	7	.55	.00	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	542.08	50.70	65.13	11.67	510	865	8.71	2630	1803	122	4.37	3.10	303

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
WEST OMELET	570	.034	630		.13	.32	2.4	.14	55	.64	6.75	10.38	265	161
BRKF SAUS DR					.11	.11	1.9	.03	2	.86	.29	1.49	313	96
PEACHES	550		550	5	.02	.03	1.0	.03	5			32.94	136	165
BLUEBRY CAKE					.03	.14	1.3	.01	2		1.25	52.60	302	83
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6	.57	2	.15	.15	19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.00			.15	15.01	97	22
COFFEE INSTA				8	.00	.00	.4	.10	11	.83		1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10				10.89	113	227
SUM	3420	.034	3480	118	1.37	1.24	9.8	.90	107	2.48	8.43	181.83	1516	851

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 7 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
OMLT/SAUSPOT	107.52	19.39	23.50	2.80	55	183	2.59	1038	231	19	2.38	3.21	350
HAM SLICES	56.43	21.35	5.16	2.11	4	175	1.35	738	224	21	1.50	2.49	58
FRUIT COCKTL	133.93	.65	.12	.38	10	18	.48	10	147	8		.13	
OAT/MAPLE/BS	3.54	5.51	3.04	1.08	29	187	1.01	113	569	47	.22	1.20	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	531.26	63.50	42.46	11.42	492	985	8.28	2502	2266	167	4.32	8.39	426

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	A (IU)	CAROTENE TOTAL (MG)	A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
OMLT/SAUSPOT	480	.022	520		.10	.31	1.3	.11	21	.32	3.21	7.44	319	161
HAM SLICES					.17	.17	3.2	.17	7	.17	.25	.00	132	83
FRUIT COCKTL	340		340	3	.03	.03	.6	.08				31.50	130	167
OAT/MAPLE/BS	180	.014	200		.19	.05	.4	.04	16		1.08	46.83	237	60
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6	.57	2	.15	.15	19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.00		.15	15.01	97	97	22
COFFEE INSTA				8	.00	.00	.4	.00		.83	1.10	4	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11		10.89	113	113	227
SUM	3300	.036	3360	116	1.57	1.20	8.7	1.09	88	1.46	4.69	170.20	1317	817

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DAY & BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CR GR BEEF	123.67	18.33	12.51	2.28	13	124	2.54	598	260	20	1.31	4.91	39
POTATO/BACON	109.68	9.70	7.44	2.78	29	169	1.08	702	545	31	1.51	1.61	19
PEARS	132.80	.33	.21	.25	8	12	.36	8	107	7		.13	
OAT/STRAWBER	3.61	4.87	2.57	1.15	20	183	.95	142	273	39	.13	.60	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
GRAPE JUICE	1.25	.75	.25	.45	18	23	.75	30	199	13	.02		
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	600.63	49.47	33.25	11.20	463	902	8.15	2081	2100	178	3.18	8.60	77

A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CR GR BEEF				.02	.16	2.9	.07	10	.98	1.15	7.01	214	184
POTATO/BACON			2	.11	.11	4.0	.14	16	.16	.80	31.05	230	161
PEARS			2	.02	.03	.4	.02	2			31.68	130	165
OAT/STRAWBER	.010	200		.17	.04	.3	.03	12		1.32	47.81	234	60
BREADWHITE				.19	.16	1.8	.02	30			37.88	199	75
GRAPE JUICE			9	.06	.05	.4					47.30	194	50
COCOA BEV PD		1470	24	.66	.06	.1	.57	2	.15	.15	15.01	97	22
COFFEE INSTA		460	8	.00	.00	.4	.00				1.10	4	1
MILK LOWFAT			2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	2110	2130	46	1.32	.99	10.6	.95	84	2.12	3.42	229.73	1416	924

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DAY 9 BREAKF	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
WEST OMELET	113.31	16.24	17.62	3.10	77	249	2.39	945	304	24	2.20	1.61	251
HAM SLICES	56.43	21.35	5.16	2.11	4	175	1.35	738	224	21	1.50	2.49	58
PEACHES	131.03	.74	.17	.40	5	18	.45	10	152	8		.15	
BREADWHITE	26.70	6.52	2.40	1.50	6	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	530.61	54.93	33.59	10.66	481	864	7.04	2296	1775	125	3.92	5.59	327

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
WEST OMELET	570	.034	630		.13	.32	2.4	.14	55	.64	6.75	10.38	265	161
HAM SLICES					.17	.17	3.2	.17	7	.17	.25	.00	132	83
PEACHES	550		550	5	.02	.03	1.0	.03	5			32.94	136	165
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6	.57	2		.15	19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.00		.15		15.01	97	22
COFFEE INSTA				8		.00	.4					1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	3420	.034	3480	118	1.40	1.17	9.8	1.03	111	1.78	7.15	127.75	1033	755

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DAY 10 BREAK	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
HAM EGGS	120.84	20.56	14.55	2.81	63	304	3.07	704	297	22	1.51	1.61	263
BRKF SAUS DR	50.98	12.69	28.49	1.95	13	74	1.56	596	157	11	1.41		34
OAT/APPLE/CN	3.78	5.27	2.98	1.07	23	191	1.05	136	500	46	.16	1.20	
APL COFFE CK	22.36	3.56	5.31	1.03	25	131	1.45	286	106	9	.41	.00	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
ORANGE JUICE	.22	1.10	.37	.75	18	29	.37	2	380	2			
COCOA BEV PD	.56	1.42	3.51	1.00	34	99	.41	107	246	17	.21		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	427.80	58.68	61.98	11.91	519	1121	9.97	2324	2155	160	3.70	4.16	316

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
HAM EGGS	670		670		.11	.45	2.6	.08	35	.64	1.45	1.88	221	161
BRKF SAUS DR					.11	.11	1.9	.03	2	.86	.29	1.49	313	96
OAT/APPLE/CN	180	.013	200		.18	.04	.4	.04	11		1.20	46.90	236	60
APL COFFE CK					.06	.15	1.1	.02	2		1.78	48.84	257	81
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
ORANGE JUICE	370		370	79	.15	.05	.6	.57	2		.15	19.56	86	22
COCOA BEV PD	1470		1470	24	.66	.06	.1	.00		.15	.15	15.01	97	22
COFFEE INSTA				8	.00	.00	.4	.00				1.10	4	1
MILK LOWFAT	460		460	2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	3150	.013	3170	113	1.55	1.39	9.0	.86	95	2.48	4.87	183.54	1527	744

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DAY 1 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHIX BR/GRVY	163.50	38.03	10.57	2.86	40	369	.89	837	599	47	1.66	2.22	78
GL SW POTATO	120.61	3.38	1.78	1.70	58	46	1.27	332	488	51	.73	.00	
CORN WK D	84.56	3.20	.35	1.03	4	57	.52	221	179	17	.50	.00	0
POUND CAKE	11.52	4.13	23.40	.70	22	72	1.44	295	65	5	.61	.74	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0	4	.00		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	32		.88	18
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349				
SUM	614.38	69.25	52.47	10.50	476	911	6.60	2295	1950	208	3.76	4.88	96

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHIX BR/GRVY				2	.04	.20	18.4	.38	27	.44	.89	7.04	275	222
GL SW POTATO		.799	1330		.02	.08	.7	.14	5		1.19	42.52	200	170
CORN WK D		.159	270		.01	.05	1.2	.03	7		.11	19.95	96	109
POUND CAKE					.10	.14	1.3	.02	10		4.91	34.70	366	74
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
PEANUT BUT	850	.002	850	17	.44	.02	2.4	.04	14		.70	4.39	129	21
JELLY			0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE			0	26		.00	.4	.00				37.56	150	38
COFFEE INSTA	460		460	2	.09	.37	.2	.10	11			1.10	4	1
MILK LOWFAT										.83		10.89	113	227
SUM	1310	.960	2910	55	.89	1.04	26.4	.73	104	1.27	7.80	205.16	1570	952

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DAY 2 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
LASAGNA	178.01	24.73	13.34	4.85	562	426	4.16	982	492	64	2.39	5.13	36
GREEN BEANS	95.26	1.53	.09	1.08	43	22	.84	236	105	14	.60	.00	
FRUIT COCKTL	133.93	.65	.12	.38	10	18	.48	10	147	8		.13	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	641.39	47.42	29.92	10.51	967	833	7.95	1839	1363	175	3.23	7.18	54

	A (TU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
LASAGNA		.590	980		.13	.46	1.5	.18	82	.51	2.31	35.58	361	257
GREEN BEANS		.219	360		.02	.06	.2	.02	18		.21	4.68	26	103
FRUIT COCKTL	340		340	3	.03	.03	.6	.08				31.50	130	167
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
PEANUT BUT	850		850	17	.44	.02	2.4	.04	14		.70	4.39	129	21
JELLY		.002	0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE				8		.00	.4	.00				37.58	150	38
COFFEE INSTA	480		480	2	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT												10.89	113	227
SUM	1650	.811	2990	56	.90	1.11	7.1	.44	156	1.34	3.22	172.72	1150	902

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DAY 3 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
BEEF POT RST	180.78	47.70	11.33	2.66	30	412	7.55	614	845	57	1.54	7.45	72
RICE	106.90	4.56	8.47	2.33	26	77	2.06	1015	95	15	2.19	.00	15
MIX VEGETBL	91.31	3.07	.46	1.13	29	47	1.02	190	164	17	.46	.00	
CHOC CAKE	15.47	4.69	11.80	1.18	31	139	1.39	219	174	36	.37	.71	21
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	628.64	80.52	48.43	11.50	467	1042	14.49	2648	1896	214	4.81	10.08	127

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
BEEF POT RST					.02	.52	11.7	.30	27	1.24	1.24	5.96	317	248
RICE					.36	.03	2.7	.05	17	.17	.17	47.75	285	170
MIX VEGETBL		3.261	5430		.03	.05	.7	.03	9		.32	10.70	59	107
CHOC CAKE	70	.019	100		.06	.12	.8	.02	6		1.93	38.31	278	71
BREADWHITE					.19	.16	1.8	.02	30		.70	37.88	199	75
PEANUT BUT	850		850	17	.44	.02	2.4	.04	14			4.39	129	21
JELLY		.002	0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE			0	26								37.56	150	38
COFFEE INSTA			460	8	.09	.37	.4	.00				1.10	4	1
MILK LOWFAT	460			2	.09	.37	.2	.10	11	.83		10.89	113	227
SUM	1380	3.282	6840	53	1.18	1.29	20.7	.56	114	2.07	4.36	203.69	1573	973

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DAY 4 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
BBQ PORK	95.01	24.62	25.26	3.33	43	270	2.46	618	718	48	1.67		
HAMBURG ROL	27.20	6.80	4.20		108	66	2.38	482	74	16		.50	
MAC/CHEESE	123.65	10.08	10.80	2.72	232	245	1.20	883	72	22	1.80	1.67	25
PEAS/CARROTS	104.49	3.08	.53	1.36	31	51	1.26	451	184	20	1.17	.00	
APPLESAUCE	140.55	.32	.32	.25	7	12	.62	5	108	5		.07	
SPICE CAKE	22.73	4.84	5.26	.89	27	115	.68	322	88	7	.52	.00	33
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0	4	.00		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	32		.88	18
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349				
SUM	715.99	57.29	50.72	10.54	726	980	8.78	2876	1633	153	5.17	3.12	77

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
BBQ PORK					.36	.39	7.0	.20	56	1.48	1.31	15.70	389	164
HAMBURG ROL					.40	.26	3.2	.02	30			41.80	232	80
MAC/CHEESE	460	.073	580		.08	.20	1.0	.03	17		.50	19.68	216	167
PEAS/CARROTS		6.132	10220		.08	.05	1.0	.04	6		.72	10.23	58	120
APPLESAUCE	20		20	4	.02	.05	.3	.05	1			35.18	145	177
SPICE CAKE		.013	20	26	.03	.07	.3	.01	4		1.04	40.73	230	74
BEVERAGE BSE				8		.00	.4	.00				37.56	150	38
COFFEE INSTA	460		460	2	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT												10.89	113	227
SUM	940	6.218	11300	40	1.06	1.40	13.4	.45	126	2.30	3.57	212.87	1537	1047

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DAY 5 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
PEPPER STK V	124.81	29.37	8.06	1.89	10	171	4.09	432	308	30	1.01	6.70	69
POTATO/BTRSC	138.89	3.77	6.61	2.13	52	61	1.13	443	411	27	1.20	.00	10
CARROTS SLIC	104.76	.97	.16	1.10	38	23	.56	323	136	12	.70	1.13	33
MARBLE CAKE	22.73	4.84	5.26	.89	27	115	.68	322	88	7	.52	.00	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17	.24	.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.01	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1			
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	3	0		.00		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4		.88	18
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32			
SUM	625.37	59.46	36.46	10.22	480	737	8.94	2131	1562	164	3.68	9.75	130

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
PEPPER STK V	-				.03	.25	4.4	.13	49	.84	.67	3.40	204	168
POTATO/BTRSC	690	.161	960	0	.02	.03	2.4	.07	15		.17	17.76	146	169
CARROTS SLIC		3.461	5770		.02	.02	.3	.02	8		.90	6.01	29	113
MARBLE CAKE		.013	20		.03	.07	.3	.01	4		1.04	40.73	230	74
BREADWHITE					.19	.16	1.8	.02	30		.70	37.88	199	75
PEANUT BUT	850		850	17	.44	.02	2.4	.04	14			4.39	129	21
JELLY		.002	0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE				26			.4	.00				37.56	150	38
COFFEE INSTA	460		460	2	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT												10.89	113	227
SUM	2000	3.637	8060	53	.82	.94	12.1	.40	131	1.66	3.49	168.86	1241	900

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 6 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHIX CACC	177.00	38.30	11.30	2.60	42	153	2.29	873	651	52	2.12	4.72	97
POTATO/BTRSC	138.89	3.77	6.61	2.13	52	61	1.13	443	411	27	1.20	.00	10
GREEN BEANS	95.26	1.53	.09	1.08	43	22	.84	236	105	14	.60	.00	
CHOC PUDDING	101.82	3.12	4.78	1.40	31	137	2.48	230	372	47	.40	.00	0
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	747.15	67.24	39.17	11.41	521	740	9.21	2393	2158	228	4.57	6.64	125

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHIX CACC		.229	380		.02	.28	10.9	.24	116	.47	.47	6.80	282	236
POTATO/BTRSC	690	.161	960	0	.02	.03	2.4	.07	15		.17	17.76	146	169
GREEN BEANS		.219	360		.02	.06	.2	.02	18		.21	4.68	26	103
CHOC PUDDING	190		190		.00	.12	.3	.00	3		1.39	62.13	304	173
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
PEANUT BUT	850		850	17	.44	.02	2.4	.04	14		.70	4.39	129	21
JELLY		.002	0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE			0	26		.00	.4	.00				37.56	150	38
COFFEE INSTA	460		460	2	.09	.37	.2	.10	11			1.10	4	1
MILK LOWFAT										.83		10.89	113	227
SUM	2190	.610	3200	53	.77	1.06	18.5	.48	208	1.30	2.93	192.33	1391	1057

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 7 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
HAMBURGERS	84.81	31.85	17.64	1.78	16	315	4.80	66	765		1.04		
BAKED BEANS	110.45	11.96	6.41	3.61	130	211	3.39	708	585		1.62	1.48	8
HAMBURG ROL	27.20	6.80	4.20		108	66	2.38	482	74			.50	
FRUIT COCKTL	133.93	.65	.12	.38	10	18	.48	10	147	8		.13	
CHEESE SPRED	18.20	5.62	15.69	1.79	161	255	.18	485	26	9	.66	.88	46
CATSUP	13.72	.40	.08	.72	4	10	.16	208	73				
MUSTARD	9.62	.56	.53	.52	10	9	.24	150	16				
RELISH	7.56	.06	.07	.23	2	2	.10	85	0				
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0	4	.00		
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	32		.88	18
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349				
SUM	607.85	65.46	49.08	11.02	721	1106	11.91	2310	2074	145	3.32	3.86	72

	A (IU)	CARDTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
HAMBURGERS					.12	.25	6.9					.96	290	137
BAKED BEANS					.10	.12	.8	.12	15		.51	36.25	251	169
HAMBURG ROL					.40	.26	3.2	.02	30			41.80	232	80
FRUIT COCKTL	340		340	3	.03	.03	.6	.08			.21	31.50	130	167
CHEESE SPRED	3130		3130	22	.88	.08	.0	1.30	5			1.70	170	43
CATSUP	280		280		.02	.01	.3					5.08	23	20
MUSTARD					.00	.00	.0					.77	10	12
RELISH					.00	.00	.0					4.08	17	12
BEVERAGE BSE				26		.00	.4	.00				37.56	150	38
COFFEE INSTA	460		460	8	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT				2								10.89	113	227
SUM	4210		4210	62	1.65	1.12	12.5	1.61	62	.83	.72	171.68	1390	905

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY & DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHILI	186.79	33.50	34.70	2.65	69	306	6.76	1169	1100	66	2.99	7.65	69
RICE	106.90	4.56	8.47	2.33	26	77	2.06	1015	95	15	2.19	.00	15
CORN WK D	84.56	3.20	.35	1.03	4	57	.52	221	179	17	.50	.00	0
MARBLE CAKE	22.73	4.84	5.26	.89	27	115	.68	322	88	7	.52	.00	33
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	615.16	66.60	65.14	11.11	478	922	12.49	3338	2080	194	6.45	9.57	136

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHILI					.05	.41	8.4	.20	33	1.53	3.06	17.50	516	255
RICE					.36	.03	2.7	.05	17		.17	47.75	285	170
CORN WK D		.159	270		.01	.05	1.2	.03	7		.11	19.95	96	109
MARBLE CAKE		.013	20		.03	.07	.3	.01	4		1.04	40.73	230	74
BREADWHITE					.19	.16	1.8	.02	30			37.88	199	75
PEANUT BUT	850		850	17	.44	.02	2.4	.04	14		.70	4.39	129	21
JELLY		.002	0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE			0	26								37.56	150	38
COFFEE INSTA	460		460	8	.09	.37	.4	.00	11	.83		1.10	4	1
MILK LOWFAT				2			.2	.10				10.89	113	227
SUM	1310	.174	1600	53	1.16	1.13	17.4	.46	116	2.36	5.08	226.89	1760	985

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY 9 DINNER	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
TURKEY/GRVY	117.82	34.00	11.80	1.83	13	243	1.99	731	440	33	1.63	3.32	53
POTATO/BTRSC	138.89	3.77	6.61	2.13	52	61	1.13	443	411	27	1.20	.00	10
MIX VEGETBL	91.31	3.07	.46	1.13	29	47	1.02	190	164	17	.46	.00	
BLUEBERRY DES	115.75	.88	10.27	.30	13	13	1.49	99	92	8	.20	.00	
POUND CAKE	11.52	4.13	23.40	.70	22	72	1.44	295	65	5	.61	.74	
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17	.24	.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.01	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1			
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	709.47	66.38	68.91	10.30	482	804	9.55	2368	1791	179	4.35	5.99	81

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
TURKEY/GRVY	690	.161	960	0	.02	.25	11.3	.20	28	.66	.17	.75	245	166
POTATO/BTRSC		3.261	5430		.02	.03	2.4	.07	15		.17	17.78	146	169
MIX VEGETBL					.03	.05	.7	.03	9		.32	10.70	59	107
BLUEBERRY DES					.03	.05	.5	.02	5		1.34	39.75	255	167
POUND CAKE					.10	.14	1.3	.02	10		4.91	34.70	366	74
BREADWHITE					.19	.16	1.8	.02	30		.70	37.88	199	75
PEANUT BUT	850	.002	850	17	.44	.02	2.4	.04	14			4.39	129	21
JELLY			0	0	.00	.00	.0	.00				9.15	37	14
BEVERAGE BSE			26	8		.00	.4	.00				37.56	150	38
COFFEE INSTA	460		460	2	.09	.37	.2	.10	11	.83		1.10	4	1
MILK LOWFAT												10.89	113	227
SUM	2000	3.424	7700	53	.92	1.09	21.0	.50	122	1.49	7.61	204.62	1704	1060

RECORD OF NUTRITIVE VALUES TRATION FY90 REVISED

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DAY TO DINNE	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
BEEF TIPS	122.36	30.28	7.35	1.95	20	235	2.97	457	462	34	.94	6.71	54
RICE	106.90	4.58	8.47	2.33	26	77	2.06	1015	95	15	2.19	.00	15
PEAS/CARROTS	104.49	3.08	.53	1.36	31	51	1.26	451	184	20	1.17	.00	
CHOC PUDDING	101.82	3.12	4.78	1.40	31	137	2.48	230	372	47	.40	.00	0
BREADWHITE	26.70	6.52	2.40	1.50	63	73	1.88	380	79	17		.46	
PEANUT BUT	.28	6.30	9.59	.69	9	73	.36	109	144	35	.24	.57	
JELLY	4.85	.13	.02	.03	1	1	.06	7	6	1	.01		
BEVERAGE BSE	.00	.00	.00	.19	0	0	.00	0	0				
COFFEE INSTA	.03	.00	.00	.12	2	5	.07	1	41	4	.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	.11	113	349	32		.88	18
SUM	689.75	61.64	37.50	11.25	460	867	11.23	2763	1732	204	4.95	8.63	87

A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
	6.132	10220	2	.02	.29	6.4	.23	25	.84	1.34	5.81	211	168
BEEF TIPS				.36	.03	2.7	.05	17		.17	47.75	285	170
RICE				.08	.05	1.0	.04	6		.72	10.23	58	120
PEAS/CARROTS				.00	.12	.3	.00	3		1.39	62.13	304	173
CHOC PUDDING	190			.19	.16	1.8	.02	30		.70	37.88	199	75
BREADWHITE	850	850	17	.44	.02	2.4	.04	14			4.39	129	21
PEANUT BUT		0	0	.00	.00	.0	.00				9.15	37	14
JELLY	.002										37.56	150	38
BEVERAGE BSE			26		.00	.4	.00				1.10	4	1
COFFEE INSTA	460	460	2	.09	.37	.2	.10	11	.83		10.89	113	227
MILK LOWFAT													
SUM	1500	6.134	11720	55	1.17	15.2	.48	107	1.66	4.32	226.88	1492	1007

APPENDIX D. Nutrient Information for the New T Ration Menus

Appendix D

RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

TOTALS BREAKFAST	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
NR.													
1	481.28	48.80	49.27	8.41	580	766	8.16	2120	1479	114	3.18	12.10	162
2	505.24	29.83	49.16	8.18	583	604	6.93	1818	1358	95	2.78	9.31	101
MEAN	493.26	39.32	49.22	8.30	582	685	7.54	1969	1418	104	2.98	10.70	131
MEAL REQUIREMENTS 1/3 AR 40-25		33.33	53.3		267	267	6.0	1667-2334	625-1825	133		5.0	

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
NR.														
1	2250	0.551	3170	118	1.64	1.16	15.3	1.34	90	1.13	6.36	168.75	1314	757
2	2290	0.427	3000	116	1.46	1.02	10.0	1.39	113	1.81	7.64	169.83	1241	762
MEAN	2270	0.489	3085	117	1.55	1.09	12.6	1.36	101	1.47	7.00	169.29	1277	759
MEAL REQUIREMENTS 1/3 AR 40-25			1670	20	0.60	0.73	8.0(N.E.)	0.73	133	1.0	3.3	146.7	1200	
Percent of Calories from:														
Protein - 12 Percent														
Fat - 35 Percent														
CHO - 53 Percent														

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RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

TOTALS DINNER	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholestrol (mg)
NR.													
1	410.49	50.67	40.01	7.15	468	800	5.67	1824	1100	146	2.42	6.50	134
2	441.27	55.75	50.59	7.09	478	725	6.98	1711	1434	144	2.65	7.44	121
3	553.24	46.45	47.85	9.52	455	726	6.30	2137	917	139	4.96	8.52	286
MEAN	468.33	50.96	46.15	7.92	467	750	6.32	1891	1150	143	3.34	7.49	180
MEAL REQUIREMENTS													
1/3 AR 40-25		33.33	53.3		267	267	6.0	1667-2334	625-1825	133		5.0	

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
NR.														
1	1500	0.161	1770	51	1.04	1.03	14.1	0.74	132	0.92	4.32	154.92	1183	663
2	1630	0.435	2360	53	1.31	1.18	15.4	1.01	88	1.14	7.81	171.54	1364	726
3	1520	0.221	1880	51	0.70	0.91	10.2	2.41	182	4.10	9.47	141.55	1183	799
MEAN	1550	0.273	2003	52	1.02	1.04	13.2	1.39	134	2.05	7.20	156.01	1243	729

MEAL REQUIREMENTS

1/3 AR 40-25

Percent of Calories from:

Protein - 16 Percent

Fat - 33 Percent

CHO - 50 Percent

1200

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RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

BREAKFAST DAY 1	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
SAUS PATTY	108.14	29.03	15.36	3.45	11	272	3.28	1115	194	32	2.27	9.45	93
BISCUITS	17.06	5.81	13.26		218	66	2.38	482	74	16		0.84	
COFFEE CAKE N	17.11	3.06	12.26	1.01	15	61	1.09	289	42	3	0.69	0.77	51
PEACHES	131.03	0.74	0.17	0.40	5	18	0.45	10	152	8		0.15	
ORANGE JUICE	0.22	1.10	0.37	0.75	18	29	0.37	2	380	2			
COCOA BEV PD	0.56	1.42	3.51	1.00	34	99	0.41	107	246	17	0.22		
COFFEE INSTA	0.03	0.00	0.00	0.12	2	5	0.07	1	41	4	0.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	0.11	113	349	32		0.88	18
TABASCO SCE	4.80	0.10	0.00					2	0	0			
SUM	481.28	48.80	49.27	8.41	580	766	8.16	2120	1479	114	3.18	12.10	162

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
SAUS PATTY					0.20	0.24	6.6	0.06	20	0.16	1.89	1.53	260	158
BISCUITS	320				0.40	0.26	3.2	0.02	30			43.88	318	80
COFFEE CAKE N			320		0.12	0.15	3.2	0.56	20		4.32	43.75	298	77
PEACHES		0.328	550	5	0.02	0.03	1.0	0.03	5			32.94	136	165
ORANGE JUICE		0.222	370	79	0.15	0.08	0.6					19.56	86	22
COCOA BEV PD	1470		1470	24	0.66	0.06	0.1	0.57	2	0.15	0.15	15.01	97	22
COFFEE INSTA				8	0.00	0.00	0.4	0.00				1.10	4	1
MILK LOWFAT	460		460	2	0.09	0.37	0.2	0.10	11	0.83		10.89	113	227
TABASCO SCE							0.0					0.10	1	5
SUM	2250	0.551	3170	118	1.64	1.16	15.3	1.34	90	1.13	6.36	168.75	1314	757

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RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

BREAKFAST DAY 2													
	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
CR BEEF STRP	134.01	10.25	15.29	3.24	8	110	2.00	815	78	12	1.87	6.68	32
BISCUITS	17.06	5.81	13.26		218	66	2.38	482	74	16		0.84	
COFFEE CAKE N	17.11	3.06	12.26	1.01	15	61	1.09	289	42	3	0.69	0.77	51
FRUIT COCKTL	133.93	0.65	0.12	0.38	10	18	0.48	10	147	8		0.13	
ORANGE JUICE	0.22	1.10	0.37	0.75	18	29	30.37	2	380	2			
COCOA BEV PD	0.56	1.42	3.71	1.00	34	99	0.41	107	246	17	0.22		
COFFEE INSTA	0.03	0.00	0.00	0.12	2	5	0.07	1	41	4	0.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	0.11	113	349	32		0.88	18
SUM	505.24	29.83	49.16	8.18	583	604	6.93	1818	1358	95	2.78	9.31	101

D														
	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
CR BEEF STRP	40		40		0.02	0.10	1.7	0.07	48	0.83	3.17	4.16	195	167
BISCUITS					0.40	0.26	3.2	0.02	30			43.88	318	80
COFFEE CAKE N	320		320		0.12	0.15	3.2	0.56	20		4.32	43.75	298	77
FRUIT COCKTL		0.205	340	3	0.03	0.03	0.6	0.08				31.50	130	167
ORANGE JUICE		0.222	370	79	0.15	0.05	0.6					19.56	86	22
COCOA BEV PD	1470		1470	24	0.66	0.06	0.1	0.57	2	0.15	0.15	15.01	97	22
COFFEE INSTA				8		0.00	0.4	0.00				1.10	4	1
MILK LOWFAT	460		460	2	0.09	0.37	0.2	0.10	11	0.83		10.89	113	227
SUM	2290	0.427	3000	116	1.46	1.02	10.0	1.39	113	1.81	7.64	169.83	1241	762

RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

6/12/91

DINNER DAY	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
CHIX PATTY	67.31	20.60	4.86	2.13	8	229	0.76	594	215	23	0.97	3.78	52
HAMBURG ROL	27.20	6.80	4.20		108	66	2.38	482	74	16		0.50	
CORN WK D	84.56	3.20	0.35	1.03	4	57	0.52	221	179	17	0.50	0.00	0
CHOC CAKE N	21.02	3.50	13.65	1.26	23	121	1.29	292	90	18	0.69	0.77	64
COFFEE INSTA	0.03	0.00	0.00	0.12	2	5	0.07	1	41	4	0.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	0.11	113	349	32		0.88	18
BEVERAGE BSE	0.12	2.48	2.99	0.22	36	33	0.12	2	2	0	0.00	0.00	
PEANUT BUT	0.28	6.30	9.59	0.69	9	73	0.36	109	144	35	0.24	0.57	
JELLY	4.85	0.13	0.02	0.03	1	1	0.06	7	6	1	0.01		
TABASCO SCE	4.80	0.10	0.00					2	0	0			
SUM	410.49	50.67	40.01	7.15	468	800	5.67	1824	1100	146	2.42	6.50	134

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
CHIX PATTY					0.03	0.16	5.3	0.06	32	0.09	1.04	1.61	133	95
HAMBURG ROL					0.40	0.26	3.2	0.02	30			41.80	232	80
CORN WK D		0.159	270		0.01	0.05	1.2	0.03	7		0.11	19.95	96	109
CHOC CAKE N	190		190		0.08	0.16	1.5	0.49	38		2.47	37.76	288	77
COFFEE INSTA				8		0.00	0.4	0.00				1.10	4	1
MILK LOWFAT	460		460	2	0.09	0.37	0.2	0.10	11	0.83		10.89	113	227
BEVERAGE BSE			850	25		0.02	2.4	0.04	14		0.70	28.19	150	34
PEANUT BUT	850		0	17	0.44	0.00	0.0	0.00				4.39	129	21
JELLY		0.002		0	0.00	0.00	0.0					9.15	37	14
TABASCO SCE							0.0					0.10	1	5
SUM	1500	0.161	1770	51	1.04	1.03	14.1	0.74	132	0.92	4.32	154.92	1183	663

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RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

DINNER DAY 2	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
PORK/BBQ SCE	100.00	26.13	16.82	2.32	25	214	2.27	485	597	36	1.20	4.73	52
HAMBURG ROL	27.20	6.80	4.20		108	66	2.38	482	74	16		0.50	
CORN WK D	84.56	3.20	0.35	1.03	4	57	0.52	221	179	17	0.50	0.00	0
COFEE CAKE N	17.11	3.06	12.26	1.01	15	61	1.09	289	42	3	0.69	0.77	51
COFEE INSTA	0.03	0.00	0.00	0.12	2	5	0.07	1	41	4	0.00		
MILK LOWFAT	202.33	7.55	4.35	1.68	277	215	0.11	113	349	32		0.88	18
BEVERAGE BSE	0.12	2.48	2.99	0.22	36	33	0.12	2	2	0	0.00	0.00	
PEANUT BUT	0.28	6.30	9.59	0.69	9	73	0.36	109	144	35	0.24	0.57	
JELLY	4.85	0.13	0.02	0.03	1	1	0.06	7	6	1	0.01		
TABASCO SCE	4.80	0.10	0.00					2	0	0			
SUM	441.27	55.75	50.59	7.09	478	725	6.98	1711	1434	144	2.65	7.44	121

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
PORK/BBQ SCE		0.274	460	2	0.25	0.31	4.9	0.27	6	0.31	2.68	12.24	305	158
HAMBURG ROL					0.40	0.26	3.2	0.02	30			41.80	232	80
CORN WK D		0.159	270		0.01	0.05	1.2	0.03	7		0.11	19.95	96	109
COFEE CAKE N	320		320		0.12	0.15	3.2	0.56	20		4.32	43.75	298	77
COFEE INSTA				8		0.00	0.4	0.00				1.10	4	1
MILK LOWFAT	460		460	2	0.09	0.37	0.2	0.10	11	0.83		10.89	113	227
BEVERAGE BSE	850		850	25	0.44	0.02	2.4	0.04	14		0.70	28.19	150	34
PEANUT BUT		0.002	0	0	0.00	0.00	0.0	0.00				4.39	129	21
JELLY							0.0					9.15	37	14
TABASCO SCE							0.0					0.10	1	5
SUM	1630	0.435	2360	53	1.31	1.18	15.4	1.01	88	1.14	7.81	171.54	1364	726

RECORD OF NUTRITIVE VALUES TRAYPACK FIELD TEST MENUS

DINNER DAY 3	Water (g)	Protein (g)	Fat (g)	Ash (g)	Calcium (mg)	Phos (mg)	Iron (mg)	Sodium (mg)	Potass (mg)	Magnesium (mg)	NaCl (g)	Zinc (mg)	Cholesterol (mg)
CHIX CHOWMEN	136.06	15.44	5.93	2.24	38	95	1.69	593	117	17	1.74	1.67	43
ORIENTL RICE	93.29	9.51	11.22	2.21	25	161	1.76	784	63	19	1.68	4.63	161
GREEN BEANS	95.26	1.53	0.09	1.08	43	22	0.84	236	105	14	0.60	0.00	
CHOC CAKE N	21.02	3.50	13.65	1.26	23	121	1.29	292	90	18	0.69	0.77	64
COFFEE INSTA	0.03	0.00	0.00	0.12	2	5	0.07	1	41	4	0.00		
MILK LOWFAT	203.33	7.55	4.35	1.68	277	215	0.11	113	349	32		0.88	18
BEVERAGE BSE	0.12	2.48	2.99	0.22	36	33	0.12	2	2	0	0.00	0.00	
PEANUT BUT	0.28	6.30	9.59	0.69	9	73	0.36	109	144	35	0.24	0.57	
JELLY	4.85	0.13	0.02	0.03	1	1	0.06	7	6	1	0.01		
SUM	553.24	46.45	47.85	9.52	455	726	6.30	2137	917	139	4.96	8.52	286

	A (IU)	Carotene (mg)	Total A (IU)	C (mg)	B1 (mg)	B2 (mg)	Niacin (mg)	B6 (mg)	Folacin (mcg)	B12 (mcg)	E (mg)	CHO (g)	Calories	Weight (g)
CHIX CHOWMEN					0.02	0.12	4.0	1.67	70	2.50	1.00	7.28	144	167
ORIENTL RICE	20		20		0.06	0.17	1.5	0.09	31	0.77	5.09	38.12	292	154
GREEN BEANS		0.219	360		0.02	0.06	0.2	0.02	18		0.21	4.68	26	103
CHOC CAKE N	190		190		0.08	0.16	1.5	0.49	38		2.47	37.76	288	77
COFFEE INSTA				8		0.00	0.4	0.00				1.10	4	1
MILK LOWFAT	460		460	2	0.09	0.37	0.2	0.10	11	0.83		10.89	113	227
BEVERAGE BSE				25								28.19	150	34
PEANUT BUT	350		850	17	0.44	0.02	2.4	0.04	14		0.70	4.39	129	21
JELLY		0.002	0	0	0.00	0.00	0.0	0.00				9.15	37	14
SUM	1520	0.221	1880	51	0.70	0.91	10.2	2.41	182	4.10	9.47	141.55	1183	799

APPENDIX E. Nutrient Information for MRE VIII Ration

Appendix E

RECORD OF NUTRITIVE VALUES MRE VIII

10/31/88

TOTALS	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
1	256.96	45.51	46.80	8.51	468	659	6.58	1337	1665	120	3.14	4.75	79
2	173.24	46.08	40.91	7.87	421	593	6.50	1487	1319	122	3.38	7.35	105
3	178.53	45.34	50.89	8.87	483	817	4.64	1354	1854	185	2.85	2.43	43
4	263.19	47.81	64.18	11.57	688	1372	5.70	2550	1421	130	4.97	2.20	408
5	204.88	43.39	55.02	9.18	600	696	6.66	2067	1012	108	4.55	3.17	98
6	174.76	53.34	50.37	9.00	445	715	4.97	1603	1548	170	3.21	2.27	84
7	188.91	57.03	55.90	8.37	413	579	6.92	1773	1219	160	3.89	.90	138
8	211.02	44.13	45.92	10.82	515	1125	5.29	2457	1524	128	5.13	2.88	107
9	149.96	55.96	56.60	9.54	413	644	7.86	1922	1484	172	4.35	7.38	66
10	206.50	51.48	56.11	6.90	548	716	5.27	1538	624	106	3.01	.90	111
11	186.66	49.87	53.42	7.98	559	774	5.46	1861	980	106	3.69	2.85	130
12	290.45	38.09	41.63	8.72	435	757	5.51	1714	1498	127	3.62	2.82	66
MEAN	207.09	48.17	51.48	8.94	499	787	5.95	1805	1346	136	3.82	3.32	119
MEAL REQUIREMENTS 1/3 AR 40-25		33.33	53.3		267	267	6.0	1687-2334	625-1825	133		5.0	

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	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
1	2930	.004	2940	91	2.65	1.10	10.5	1.84	47	.86	4.14	199.40	1401	557
2	3070	.014	3100	91	2.38	.96	9.8	1.86	85	1.09	4.03	186.08	1297	454
3	4630	2.007	7980	165	3.22	.98	18.7	1.84	122	1.09	3.92	176.73	1346	460
4	6910	.058	7010	116	3.51	1.32	8.8	3.16	84	.92	5.24	151.68	1375	538
5	2910	.578	3870	69	2.17	1.10	10.5	2.06	61	.79	6.41	143.35	1242	456
6	4630	.234	5020	135	3.21	1.01	16.5	1.77	71	.86	3.55	131.09	1191	419
7	1710	1.267	3620	78	2.03	1.01	12.9	.75	74	1.70	6.74	145.82	1314	456
8	3800	.055	3900	91	3.02	1.15	10.4	2.06	25	.76	4.33	162.07	1238	473
9	2200	.023	2240	152	2.38	.98	16.2	.99	72	1.02	8.80	146.30	1318	418
10	3510	.000	3510	67	2.19	.92	11.9	2.01	55	.56	5.96	129.84	1230	451
11	3400	.059	3500	113	2.47	1.00	17.3	2.44	115	.33	3.55	157.42	1310	455
12	3660	.004	3670	92	3.07	1.06	11.5	2.19	61	.63	3.44	186.29	1272	565
MEAN	3613	.359	4213	105	2.69	1.05	12.9	1.91	73	.88	5.01	159.67	1295	475
MEAL REQUIREMENTS 1/3 AR 40-25			1670	20	0.60	0.73	8.0(M.E.)	0.73	133	1.0	3.3	146.7	1200	

PERCENT OF CALORIES FROM:

PROTEIN	-	15 PERCENT
FAT	-	36 PERCENT
CHO	-	49 PERCENT

RECORD OF NUTRITIVE VALUES MRE VIII

10/31/88

MENU 1	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
PORK BBQ/RCE	143.68	32.27	25.13	3.81	39	288	3.67	828	796	48	2.06	4.54	79
APPLESAUCE	100.27	.23	.23	.18	5	9	.44	4	77	4		.05	
JELLY	9.70	.26	.05	.05	2	3	.11	13	11	2	.01		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CANDY AVER	.77	2.65	4.79	.49	44	41	.44	74	67	11	.16	.18	
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
TABASCO SCE	.00	.10	.00					2	0	0			
SUM	256.96	45.51	46.80	8.51	466	659	6.58	1337	1685	120	3.14	4.75	79

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
PORK BBQ/RCE	10		10	3	.34	.32	6.4	.27	41	.45	2.49	21.91	443	227
APPLESAUCE					.01	.04	.2	.04	1			25.10	103	126
JELLY	0	.004	10	1	.00	.00	0	.00	0			18.29	75	28
CRACKERS UST		.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CANDY AVER					.01	.06	.1	.01	1		.43	28.30	167	37
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25								28.19	150	34
COFFEE INSTA				15		.01	.8	.00				2.19	9	3
CREAM SUB ND	0	.000	0	0	.00	.03	.0	.00				2.11	19	4
SUGAR						.00	.0	.00				5.97	24	6
TABASCO SCE							.0					4.90	20	5
SUM	2930	.004	2940	91	2.65	1.10	10.5	1.84	47	.86	4.14	199.40	1401	557

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MENU 2	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
C BEEF HASH	157.56	29.78	13.06	3.06	25	181	3.40	878	445	34	2.15	6.80	86
PEARS DEHY	.42	.18	.04	.15	4	7	.13	9	71	5	.02	.04	
JELLY	9.70	.26	.05	.05	2	3	.11	13	11	2	.01		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
OATML CK BAR	3.02	5.86	11.15	.63	14	84	.95	172	79	26	.29	.50	19
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	173.24	46.08	40.91	7.87	421	593	6.50	1487	1319	122	3.38	7.35	105

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
C BEEF HASH		.003	10	2	.02	.20	5.2	.32	66	.68	.68	23.34	330	227
PEARS DEHY		.004	10	1	.01	.02	.1	.01	0	.19	.19	14.22	58	15
JELLY	0	.000	0	0	.00	.00	.0	.00	0	.11	.91	18.29	75	28
CRACKERS UST	150	.006	160	0	.98	.53	2.8	.38	0		1.95	32.75	199	45
OATML CK BAR	2920		2920	48	.06	.05	.6	.02	15	.30	.30	29.33	241	50
COCOA BEV PD				25	1.31	.11	.2	1.13	5			29.69	192	43
BEVERAGE BSE				15		.01	.8	.00				28.19	150	34
COFFEE INSTA				0		.03		.00				2.19	9	3
CREAM SUB ND	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR												5.97	24	6
SUM	3070	.014	3100	91	2.38	.96	9.8	1.86	85	1.09	4.03	186.08	1297	454

RECORD OF NUTRITIVE VALUES MRE VIII

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MENU 3	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHIX STEW	174.30	19.28	10.23	2.72	41	297	1.27	635	671	43	1.29	2.27	43
PEACHES FRDH	.36	.70	.07	.30	3	13	.31	9	113	5	.01	.00	
PEANUT BUT	.55	12.61	19.19	1.38	18	147	.71	218	289	70	.48		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CANDY AVER	.77	2.65	4.79	.49	44	41	.44	74	67	11	.16	.16	
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	1.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	.00	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
TABASCO SCE	.00	.10	.00					2	0	0			
SUM	178.53	45.34	50.89	8.87	483	817	4.64	1354	1854	185	2.85	2.43	43

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHIX STEW		1.948	3250		.05	.18	9.5	.23	86	.68	.45	20.28	250	227
PEACHES FRDH		.059	100	44	.01	.02	.5	.01	3		.42	13.56	58	15
PEANUT BUT	1710		1710	33	.87	.04	4.7	.08	27		1.40	8.79	258	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CANDY AVER					.01	.06	.1	.01	1		.43	28.30	167	37
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25				.00				28.19	150	34
COFFEE INSTA				15		.01	.8	.00				2.19	9	3
CREAM SUB ND					.00	.03	.0	.00				2.11	19	4
SUGAR	0	.000	0	0	.00	.00	.0	.00				5.97	24	6
TABASCO SCE							.0					4.90	20	5
SUM	4630	2.007	7980	165	3.22	.98	18.7	1.84	122	1.09	3.92	176.73	1346	460

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MENU 4	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
HAM OMELET	127.86	22.59	13.00	3.21	44	362	2.28	936	332	26	1.99	1.70	338
POT AU GRAT	111.59	3.69	7.65	2.03	96	373	.37	587	272	14	1.13	.00	10
CHEESE SPR	18.17	5.68	15.77	1.72	158	235	.20	441	26	10	.65		39
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
OATML CK BAR	3.02	5.86	11.15	.63	14	84	.95	172	79	26	.29	.50	19
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43	.00	
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00		
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	263.19	47.81	64.18	11.57	688	1372	5.70	2550	1421	130	4.97	2.20	408

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
HAM OMELET	500		500		.24	.39	3.4	.19	51	.51	1.02	3.44	221	170
POT AU GRAT	430	.051	520	1	.04	.11	1.0	.06	10		.85	16.80	151	142
CHEESE SPR	2910		2910	27	.88	.07	.0	1.38	4		.21	1.19	169	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	198	45
OATML CK BAR	150	.006	160		.06	.05	.6	.02	15		1.95	29.33	241	50
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25		.01	.8	.00				28.19	150	34
COFFEE INSTA				15		.03		.00				2.19	9	3
CREAM SUB NO	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00						5.97	24	6
SUM	6910	.058	7010	116	3.51	1.32	8.8	3.16	84	.92	5.24	151.66	1375	538

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MENU 5	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
SPAG/MT SCE	171.37	23.45	7.19	4.29	77	211	3.70	1095	635	48	2.81	2.27	27
CHEESE SPR	18.17	5.68	15.77	1.72	158	235	.20	441	26	10	.65		39
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
MAPLE NUT CK	13.90	6.97	22.40	1.18	56	128	1.67	325	125	30	.61	.90	32
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB MD	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
TABASCO SCE	.00	.10	.00					2	0	0			
SUM	204.88	43.39	55.02	9.18	600	696	6.66	2067	1012	108	4.55	3.17	98

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
SPAG/MT SCE	2910	.578	960	2	.14	.27	5.2	.27	41	.68	2.49	20.50	241	227
CHEESE SPR	0	.000	2910	27	.88	.07	.0	1.38	4		.21	1.18	169	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
MAPLE NUT CK					.17	.19	1.6	.03	16		2.79	45.55	412	90
BEVERAGE BSE				25								28.19	150	34
COFFEE INSTA				13		.01	.8	.00				2.19	9	3
CREAM SUB MD	0	.000	0	0	.00	.03	.0	.00				2.11	19	4
SUGAR						.00	.0	.00				5.97	24	6
TABASCO SCE							.0					4.90	20	5
SUM	2910	.578	3870	69	2.17	1.10	10.5	2.06	61	.79	6.41	143.35	1242	456

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MENU 6	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHIC ALAKING	171.52	30.03	14.41	3.27	34	229	1.84	965	415	34	1.82	2.27	84
STRAWBER SW	.13	.70	.16	.37	17	20	.51	5	131	11	.01		
PEANUT BUT	.55	12.61	19.19	1.38	18	147	.71	218	289	70	.48		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.08	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	174.76	53.34	50.37	9.00	445	715	4.97	1603	1548	170	3.21	2.27	84

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHD (G)	CALORIES	WEIGHT (G)
CHIC ALAKING		.227	380		.05	.27	7.7	.16	32	.45	.68	7.76	281	227
STRAWBER SW		.007	10	14	.01	.01	.3	.02	7		.25	13.63	59	15
PEANUT BUT	1710		1710	33	.87	.04	4.7	.08	27		1.40	8.79	258	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25		.01	.8	.00				28.19	150	34
COFFEE INSTA				15		.03		.00				2.19	9	3
CREAM SUB ND	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00		.00				5.97	24	6
SUM	4630	.234	5020	135	3.21	1.01	16.5	1.77	71	.86	3.55	131.09	1191	419

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MENU 7	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
BEEF STEW	169.05	30.51	10.08	3.90	34	207	3.54	1044	599	43	2.41		116
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
PEANUT BUT	.55	12.61	19.19	1.38	18	147	.71	218	289	70	.48		
CHERRY NTCK	17.86	6.62	16.96	1.09	51	104	1.57	304	105	26	.52	.90	23
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.08	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
TABASCO SCE	.00	.10	.00					2	0	0			
SUM	188.91	57.03	55.90	8.37	413	579	6.92	1773	1219	160	3.89	.90	138

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	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
BEEF STEW		1.267	2110	5	.05	.25	3.4	.27	34	1.59	1.82	13.48	267	227
CRACKERS UST		.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
PEANUT BUT	1710		1710	33	.87	.04	4.7	.08	27		1.40	8.79	258	43
CHERRY NTCK					.13	.14	1.2	.02	13		2.61	47.46	389	90
BEVERAGE BSE				25			.6	.00				28.19	150	34
COFFEE INSTA				15		.01	.0	.00				2.19	9	3
CREAM SUB ND				0	.00	.03	.0	.00				2.11	19	4
SUGAR	0	.000	0	0	.00	.00	.0	.00				5.97	24	6
TABASCO SCE						.00	.0					4.90	20	5
SUM	1710	1.267	3820	78	2.03	1.01	12.9	.75	74	1.70	6.74	145.82	1314	456

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MENU 8	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
HAM SLICES	84.07	26.22	5.32	4.21	7	359	1.46	1364	407	27	2.92	2.38	81
POT AU GRAT	111.59	3.69	7.65	2.03	96	373	.37	587	272	14	1.13	.00	10
JELLY	9.70	.26	.05	.05	2	3	.11	13	11	2	.01		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
BROWN CHCV	3.12	3.97	16.29	.54	34	72	1.44	78	121	30	.16	.80	16
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	211.02	44.13	45.92	10.82	515	1125	5.29	2457	1524	128	5.13	2.88	107

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHD (G)	CALORIES	WEIGHT (G)
HAM SLICES	430	.051	520	1	.29	.26	5.1	.21	5	.36	.71	.00	153	119
POT AU GRAT		.004	10	1	.04	.11	1.0	.06	10		.85	16.80	151	142
JELLY	0	.000	0	0	.00	.00	.0	.00	0			18.29	75	28
CRACKERS UST	450		450	1	.98	.53	2.8	.38	0	.11	.91	32.75	199	49
BROWN CHCV	2920		2920	48	.40	.09	.4	.27	6	.30	1.55	26.08	267	50
COCOA BEV PD				25	1.31	.11	.2	1.13	5		.30	29.69	192	43
BEVERAGE BSE				15		.01	.8	.00				28.19	150	34
COFFEE INSTA	0	.000	0	0	.00	.03	.0	.00				2.19	9	3
CREAM SUB NO						.00	.0	.00				2.11	19	4
SUGAR						.00	.0	.00				5.97	24	6
SUM	3800	.055	3900	91	3.02	1.15	10.4	2.06	25	.76	4.33	162.07	1238	473

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MENU 9	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
MEATBLS/RICE	146.81	32.64	15.45	5.40	48	293	4.79	1399	776	52	3.20	6.80	54
FRUIT MX DEH	.42	.49	.13	.23	9	12	.27	6	104	7	.01	.15	
PEANUT BUT	.55	12.61	19.19	1.38	18	147	.71	218	289	70	.48		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
COOKIES CHCV	.74	3.03	12.17	.53	29	70	.99	94	90	22	.17	.43	11
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	149.96	55.96	56.60	9.54	413	644	7.86	1922	1484	172	4.35	7.38	66

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHD (G)	CALORIES	WEIGHT (G)
MEATBLS/RICE		.023	40	77	.07	.27	7.3	.25	32	.91	5.44	26.51	376	227
FRUIT MX DEH					.01	.02	.3	.01	6		.15	13.73	58	15
PEANUT BUT	1710		1710	33	.67	.04	4.7	.08	27		1.40	8.79	258	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
COOKIES CHCV	490		490	2	.45	.08	.3	.27	7		.89	26.06	226	43
BEVERAGE BSE				25		.01	.8	.00				28.19	150	34
COFFEE INSTA				15		.03		.00				2.19	9	3
CREAM SUB ND	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00		.00				5.97	24	6
SUM	2200	.023	2240	152	2.38	.98	16.2	.99	72	1.02	8.80	146.30	1318	418

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MENU 10	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
TUNA/NOODLES	172.10	26.04	8.89	2.02	29	229	2.00	603	220	39	1.36	.00	41
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CHEESE SPR	18.17	5.68	15.77	1.72	158	235	.20	441	26	10	.65		39
CH NUT CAKE	14.79	12.57	21.79	1.17	51	130	1.98	290	152	37	.52	.90	31
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	208.50	51.48	58.11	6.90	548	716	5.27	1538	624	106	3.01	.90	111

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
TUNA/NOODLES	600		600		.18	.14	6.8	.23	34	.45	2.04	17.76	255	227
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CHEESE SPR	2910		2910	27	.88	.07	.0	1.38	4		.21	1.19	169	43
CH NUT CAKE					.14	.14	1.4	.02	17		2.79	39.68	405	90
BEVERAGE BSE				25								28.19	150	34
COFFEE INSTA				15		.01	.8	.00				2.19	9	3
CREAM SUB NO				0	.00	.03	.0	.00				2.11	19	4
SUGAR	0	.000	0	0	.00	.00	.0	.00				5.97	24	6
SUM	3510	.000	3510	67	2.19	.92	11.9	2.01	55	.56	5.96	129.84	1230	451

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MENU 11	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHIX/RICE	185.18	30.62	10.95	2.95	16	293	2.43	1039	458	36	2.22	2.27	79
PEACHES FRDH	.36	.70	.07	.30	3	13	.31	9	113	5	.01	.00	
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CHEESE SPR	18.17	5.68	15.77	1.72	158	235	.20	441	26	10	.65		39
COOKIES CHCV	.74	3.03	12.17	.53	29	70	.99	94	90	22	.17	.43	11
CANDY AVER	.77	2.65	4.79	.49	44	41	.44	74	67	11	.16	.16	
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	186.66	49.87	53.42	7.98	559	774	5.46	1861	980	106	3.69	2.85	130

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHIX/RICE					.14	.20	12.7	.39	100	.23	.68	17.10	289	227
PEACHES FRDH		.059	100	44	.01	.02	.5	.01	3		.42	13.56	58	15
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CHEESE SPR	2910		2910	27	.88	.07	.0	1.38	4		.21	1.19	169	43
COOKIES CHCV	490		490	2	.45	.08	.3	.27	7		.89	26.06	226	43
CANDY AVER					.01	.06	.1	.01	1		.43	28.30	167	37
BEVERAGE BSE				25			.8	.00				28.19	150	34
COFFEE INSTA				15		.01	.03	.00				2.19	9	3
CREAM SUB NO	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00	.0	.00				5.97	24	6
SUM	3400	.059	3500	113	2.47	1.00	17.3	2.44	115	.33	3.55	157.42	1310	455

10/31/88

MENU 12	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
HAM/POTATOES	174.82	23.63	8.46	3.97	18	356	1.61	1204	576	36	2.54	2.27	50
APPLESAUCE	100.27	.23	.23	.18	5	9	.44	4	77	4		.09	
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
JELLY	9.70	.26	.05	.05	2	3	.11	13	11	2	.01		
BROWN CHCV	3.12	3.97	16.29	.54	34	72	1.44	78	121	30	.16	.50	16
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.08	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	290.45	38.09	41.63	8.72	435	757	5.51	1714	1498	127	3.62	2.82	66

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
HAM/POTATOES	280		280		.36	.25	7.0	.36	50	.23	.68	15.92	234	227
APPLESAUCE	10		10	3	.01	.04	.2	.04	1			25.10	103	126
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
JELLY		.004	10	1	.00	.00	.0	.00				18.29	75	28
BROWN CHCV	450		450	1	.40	.09	.4	.27	6		1.55	26.08	267	50
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25		.01	.8	.00				28.19	150	34
COFFEE INSTA				15		.03		.00				2.19	9	3
CREAM SUB NO	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00		.00				5.97	24	6
SUM	3660	.004	3670	92	3.07	1.06	11.5	2.19	61	.63	3.44	186.29	1272	565

RECORD OF NUTRITIVE VALUES NRE VIII

10/31/88

ALT 1	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
FRANKFURT	64.97	15.10	20.63	2.46	19	112	1.65	899	201	14	1.92	2.10	60
POTATO T	116.33	3.56	5.43	1.83	43	57	1.05	371	352	24	.96		9
PEACHES T	101.15	.57	.13	.31	4	14	.34	8	117	6		.11	
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CHEESE SPR	18.17	5.68	15.77	1.72	158	235	.20	441	26	10	.65	.16	39
CANDY AVER	.77	2.65	4.79	.49	44	41	.44	74	67	11	.16		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB NO	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	302.84	34.75	56.41	8.79	576	581	4.77	1997	988	86	4.17	2.37	107

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
FRANKFURT				16	.05	.16	2.9	.09	7	.73	.52	1.84	253	105
POTATO T	580	.135	800	0	.01	.03	2.4	.06	7		.14	14.60	121	142
PEACHES T	420		420	4	.01	.03	.8	.03	4			25.43	105	128
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CHEESE SPR	2910		2910	27	.88	.07	.0	1.38	4		.21	1.19	169	43
CANDY AVER				25	.01	.06	.1	.01	1		.43	28.30	167	37
BEVERAGE BSE				15		.01	.8	.00				28.19	150	34
COFFEE INSTA						.03		.00				2.19	9	3
CREAM SUB NO	0	.000	0	0	.00	.00	.0	.00				2.11	19	4
SUGAR						.00		.00				5.97	24	6
SUM	3910	.135	4130	87	1.95	.91	9.9	1.95	24	.84	2.22	142.56	1217	545

10/31/88

ALT 2	WATER (G)	PROTEIN (G)	FAT (G)	ASH (G)	CALCIUM (MG)	PHOS (MG)	IRON (MG)	SODIUM (MG)	POTASS (MG)	MAGNESIUM (MG)	NACL (G)	ZINC (MG)	CHOLESTROL (MG)
CHILI MAC	167.85	22.91	10.64	3.52	45	256	4.08	837	644	48	2.06	4.54	57
PEARS	102.51	.26	.17	.19	6	9	.28	6	83	5		.10	
PEANUT BUT	.55	12.61	19.19	1.38	18	147	.71	218	289	70	.48		
CRACKERS UST	.95	4.43	5.58	1.29	261	52	.72	184	72	12	.44		
CANDY AVER	.77	2.65	4.79	.49	44	41	.44	74	67	11		.16	
COCOA BEV PD	1.10	2.80	6.95	1.99	67	196	.81	211	487	34	.43		
BEVERAGE BSE	.12	2.48	2.99	.22	36	33	.12	2	2	0	.00	.00	
COFFEE INSTA	.06	.00	.00	.24	4	10	.14	2	81	8	.00		
CREAM SUB ND	.30	.28	1.09	.22	7	28	.11	16	71	1	.03		
SUGAR	.00	.00	.00	.03	0	0	.01	0	0	0	.00		
SUM	274.23	48.41	51.39	9.56	490	771	7.42	1551	1796	189	3.61	4.80	57

	A (IU)	CAROTENE (MG)	TOTAL A (IU)	C (MG)	B1 (MG)	B2 (MG)	NIACIN (MG)	B6 (MG)	FOLACIN (MCG)	B12 (MCG)	E (MG)	CHO (G)	CALORIES	WEIGHT (G)
CHILI MAC		.796	1330	2	.14	.29	5.7	.48	68	1.13	1.36	21.89	275	227
PEARS				1	.01	.03	.3	.01	2			24.46	100	128
PEANUT BUT	1710		1710	33	.87	.04	4.7	.08	27		1.40	8.79	258	43
CRACKERS UST	0	.000	0	0	.98	.53	2.8	.38	0	.11	.91	32.75	199	45
CANDY AVER					.01	.06	.1	.01	1		.43	28.30	167	37
COCOA BEV PD	2920		2920	48	1.31	.11	.2	1.13	5	.30	.30	29.69	192	43
BEVERAGE BSE				25		.01	.8	.00				28.19	150	34
COFFEE INSTA				15		.03		.00				2.19	9	3
CREAM SUB ND						.00		.00			2.11	19	4	4
SUGAR	0	.000	0	0	.00	.00	.0	.00			5.97	24	24	6
SUM	4630	.796	5960	124	3.32	1.11	14.6	2.09	103	1.54	4.40	184.34	1394	568

MIN. PERCENT IN FOL UNITS

	WATER	PROTEIN	FOL	IRON	CO	PHOS	IRON	SODIUM	POTASS	MAGNES	NICKL	ZINC		
CHAMPFLS	1.31	1.29	3.36	0.53	39	32	0.27	141	67	5	0.33	0		
MINUS	0.6	6.67	10.7	0.04	17	11	0.52	73	132	28	0.15	0.48		
CHAMPFLS	0.4	0	0.31	0.09	6	2	0.54	9	1					
AVERAGE	0.77	2.65	4.79	0.49	44	41	0.44	71	33	11	0.16	0.16		
	A	CHRD TOTAL	C	FI	BI	BI	NIRC	B6	FOLACIN	B12	E	CHO	CALORIES	WEIGHT
CHAMPFLS														
MINUS														
CHAMPFLS														
AVERAGE														

NOTE 1: CARBOHYDRATE HAS BEEN COMPUTED BY DIFFERENCE

NOTE 2: COCOA BEVERAGE POWDER, CHEESE SPREAD AND THE COATINGS FOR OATMEAL COOKIES AND BROWNIES ARE FORTIFIED WITH VITAMIN A, ASCORBIC ACID, THIAMIN AND PYRIDOXINE. PEANUT BUTTER IS FORTIFIED WITH VITAMIN A, ASCORBIC ACID AND THIAMIN. COFFEE IS FORTIFIED WITH ASCORBIC ACID. CRACKERS ARE FORTIFIED WITH CALCIUM CARBONATE, THIAMIN, RIBOFLAVIN, NIACIN AND PYRIDOXINE.

NOTE 3: CALORIES HAVE BEEN COMPUTED USING 4, 9, 4, CALORIE FACTORS.

NOTE 4: NO ADJUSTMENTS HAVE BEEN MADE TO COMPENSATE FOR NUTRITIONAL LOSSES DURING STORAGE.

NOTE 5: BLANKS IN COLUMNS REPORTING NaCl, ZINC, CHOLESTEROL, FOLACIN, VITAMINS B12 AND E DATA INDICATE MISSING DATA, NOT ZERO VALUES.

APPENDIX F. Body Weight Checklist

Appendix F

DAY GROUP	WEIGHT	BOOTS	SOCKS	BDU		UNDERWEAR	BELT	LONGJOHN TOP/BOTTOM	FIELD JACKET AND/OR LINER	SLEEP SHIRT	OTHER
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	

APPENDIX G. MRE Intake Record

Appendix G MRE INTAKE RECORD

NAME: _____ ID: _____ DATE: _____

FOOD TYPE	CODE	FOOD ITEM (Circle One)	AMOUNT EATEN	WHEN EATEN (Military Time)	WATER ADDED (Canteen Cups)										DID YOU HEAT THE ITEM?		HOW DID YOU HEAT THE ITEM?	
						DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY				
ENTREE	00	Pork w/Rice, BBQ Scc	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	01	Spaghetti w/Meat Sauce	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	02	Ham Slices	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	03	Tuna with Noodles	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	04	Chicken & Rice	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	05	Esc. Potato w/Ham	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	06	Corned Beef Hash	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	07	Chicken Stew	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	08	Omelet with Ham	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	09	Chicken a la King	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	10	Beef Stew	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	11	Meatballs, Rice & Scc	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
STARCH	16	Crackers	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	17	Potatoes au Gratin	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
SPREAD	22	Cheese Spread	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	23	Jelly	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	24	Peanut Butter	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
FRUIT	29	Peaches	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	30	Pears	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	31	Applesauce	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	32	Fruit Mix	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	33	Strawberries	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
DESSERT	38	Choc. Covered Cookie	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	39	Brownies	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	40	Cherry Nut Cake	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	41	Maple Nut Cake	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	42	Oatmeal Cookie Bar	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	43	Chocolate Nut Cake	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9	YES	NO	_____	
BEVERAGE	48	Coffee	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	49	Grape Beverage	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	50	Lemon-Lime Beverage	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	51	Cherry Beverage	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	52	Orange Beverage	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
	53	Cocoa	0 1/4 1/2 3/4 1 or _____	_____	_____	1	2	3	4	5	6	7	8	9	YES	NO	_____	
OTHER	58	M & M's	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	59	Caramels	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	60	Charms	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	61	Gum	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	62	Hot Sauce	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	63	Cream Substitute	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	64	Sugar	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				
	65	Salt	0 1/4 1/2 3/4 1 or _____	_____	NA	1	2	3	4	5	6	7	8	9				

APPENDIX H. T Ration Plate Waste Form

Appendix H

GROUP _____													
DAY _____													
MEAL _____													
BREAD KIND _____	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE	WI WE
FRESH FRUIT KIND _____	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP	AOBP
CEREAL KIND _____													
COFFEE													
COCOA													
MILK KIND _____	C W	C W	C W	C W	C W	C W	C W	C W	C W	C W	C W	C W	C W
JUICE KIND _____	O G	O G	O G	O G	O G	O G	O G	O G	O G	O G	O G	O G	O G
PORK PATTIES													
BISCUITS													
CINNAMON CRUMB CAKE													
PEACHES													
HOT SAUCE													

APPENDIX I. T Ration Acceptability Form

Appendix I

Breakfast Acceptability

Name: _____

ID: _____

Date: _____

Please use the following scale to indicate your like or dislike of each of the T Ration items you ate at this meal.

DID NOT EAT	DISLIKE			NEITHER			LIKE							
	DISLIKE EXTREMELY	VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY					
0	1	2	3	4	5	6	7	8	9					
Entree	Omelet w/ Bacon and Cheese				0	1	2	3	4	5	6	7	8	9
	Corned Beef Hash													
Fruit	Pears													
Beverages	Orange Juice													
	Coffee													
	Cocoa													
	White Milk													
	Chocolate Milk													
Bread	White													
	Wheat													
Oatmeal	Peaches and Cream													
	Cinnamon Spice													
	Raisin Spice													
	Strawberry													
	Maple Brown Sugar													
	Apple Cinnamon													
Fresh Fruit	Apple													
	Orange													
	Pear													
	Bananas													
Cereal	Frosted Krispies													
	Sugar Smacks													
	Fruit Loops													
	Frosted Flakes													
	Corn Pops													
OTHER:	_____													
OTHER:	_____													

DO NOT WRITE BELOW LINE

ID	DAY	GROUP	MEAL	OTHER	
0 1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7	A B	AM PM	0 1 2 3 4 5	0 1 2 3 4 5

APPENDIX J. Control Group Final Questionnaire

TRAY RATION FINAL QUESTIONNAIRE



Thank you for participating in our T-Ration evaluation. We would like to ask you your overall opinion of the T-Ration. Your opinions will be very important in determining any changes that will be made in the ration. Your answers will be kept confidential. Please answer honestly and thoughtfully.

1. Your name: _____
2. Your Social Security Number (Last four digits only): _____
3. Your rank: E-_____ W-_____ O-_____
4. Your Company: _____ Platoon: _____
5. Do you think you gained or lost weight during this exercise?



Gained



Lost



Neither gained nor lost weight

If you think you GAINED weight,
what were some of the reasons?



a. Ate too much food



b. Drank too much water/beverage



c. Too little physical activity



d. Other (specify) _____

If you think you LOST weight,
what were some of the reasons?



a. Ate too little food



b. Drank too little water/beverage



c. Too much physical activity



d. Other (specify) _____

6. How easy/difficult was it to obtain water? Fill in the circle under your answer.

Extremely
Difficult

1

Moderately
Difficult

2

Somewhat
Difficult

3

Neither
Easy Nor
Difficult

4

Somewhat
Easy

5

Moderately
Easy

6

Extremely
Easy

7



7. How did you obtain water? Fill in the circle next to all answers that apply.



a. From a stream



b. From a lake or pond



c. 5 gallon cans



d. Water Buffalo



e. Other (please write in) _____

DO NOT WRITE BELOW THIS LINE

GP

A	
B	

SUBJ

0 1 2 3 4 5 6 7 8 9

E
O
WO

1 2 3 4 5 6 7 8 9

B
P
S

0 1 2 3 4 5 6 7 8 9



8. We would like your honest evaluation of the T-Ration items you ate during this exercise.

Using the scale below, please fill in the circle below the number that best describes your opinion of each item. If you never tried an item, fill in the circle under "0".

NEVER TRIED	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9
T RATION BREAKFAST ITEMS									
1. Western Omelet									
2. Omelet with Sausage and Potatoes									
3. Bread Pudding									
4. Omelet with Bacon Pieces									
5. Creamed Ground Beef									
6. Omelet with Bacon and Cheese									
7. Eggs and Ham									
8. Potatoes with Bacon Pieces									
9. Ham Slices									
10. Pork Sausage Links									
11. Corned Beef Hash									
12. Wheat Bread									
13. White Bread									
14. Apple Coffee Cake									
15. Blueberry Cake									
16. Peaches in Syrup									
17. Fruit Cocktail									
18. Pears in Syrup									
19. Maple Syrup									
20. Hot Sauce									
21. Orange Juice									
22. Grape Juice									
23. White Milk									
24. Chocolate Milk									
25. Coffee									
26. Cocoa									
27. Peaches and Cream Oatmeal									
28. Cinnamon and Spice Oatmeal									
29. Raisin and Spice Oatmeal									
30. Strawberry Oatmeal									
31. Maple and Brown Sugar Oatmeal									
32. Apple Cinnamon Oatmeal									
33. Apple									
34. Orange									
35. Pear									
36. Banana									

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(Continued)

NEVER TRIED	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9

T RATION BREAKFAST ITEMS

	0	1	2	3	4	5	6	7	8	9
37. Frosted Krispies	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Sugar Smacks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Fruit Loops	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. Frosted Flakes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Corn Pops	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Additional Breakfast Items	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

T RATION DINNER ITEMS

	0	1	2	3	4	5	6	7	8	9
1. Lasagna	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Beef Pot Roast	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Hamburger	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Turkey Slices	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Chicken Cacciatore	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. Chicken Breast with Gravy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Barbecue Pork	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Beef Strips with Peppers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9. Chili Con Carne	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10. Beef Tips with Gravy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11. Green Beans	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12. White Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13. Potatoes with Butter Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14. Beans with Bacon Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15. Mixed Vegetables	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16. Glazed Sweet Potatoes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17. Macaroni and Cheese	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18. Peas with Carrots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19. Corn	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20. Sliced Carrots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21. Wheat Bread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22. White Bread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23. Hamburger Roll	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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(Continued)

NEVER TRIED 0 | DISLIKE EXTREMELY 1 | DISLIKE VERY MUCH 2 | DISLIKE MODERATELY 3 | DISLIKE SLIGHTLY 4 | NEITHER LIKE NOR DISLIKE 5 | LIKE SLIGHTLY 6 | LIKE MODERATELY 7 | LIKE VERY MUCH 8 | LIKE EXTREMELY 9

T RATION DINNER ITEMS

	0	1	2	3	4	5	6	7	8	9
24. Chocolate Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25. Blueberry Dessert	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26. Pound Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27. Chocolate Pudding	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
28. Marble Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
29. Spice Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
30. Fruit Cocktail	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
31. Applesauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
32. Grape Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
33. Lemon-Lime Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
34. Orange Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
35. White Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
36. Chocolate Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
37. Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Lemon Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Cherry Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
42. Ketchup	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
43. Mustard	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
44. Relish	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
45. Cheese Spread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
46. Salad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
47. Thousand Island Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
48. Plain Salad Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
49. French Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
50. Apple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
51. Orange	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
52. Pear	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
53. Banana	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Additional Dinner Items _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9. We would like your honest evaluation of the MRE items you ate. Using the scale below, please fill in the circle below the number that best describes your opinion of each item. If you never tried an item, fill in the circle under "0".

NEVER TRIED	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9

MRE ITEMS

	0	1	2	3	4	5	6	7	8	9
1. Pork w/ Rice and BBQ Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Corned Beef Hash	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Chicken Stew	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Omelet with Ham	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Spaghetti with Meat Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. Chicken a la King	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Beef Stew	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Ham Slice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9. Meatballs with Rice and Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10. Tuna with Noodles	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11. Chicken and Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12. Escalloped Potatoes with Ham	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13. Crackers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14. Potato au Gratin	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15. Cheese Spread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16. Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17. Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18. Applesauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19. Fruit Mix	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20. Peaches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21. Pears	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22. Strawberries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23. Brownie	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
24. Cherry Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25. Chocolate Covered Cookie	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26. Maple Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27. Oatmeal Cookie Bar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
28. Chocolate Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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(Continued)

NEVER TRIED 0 | DISLIKE EXTREMELY 1 | DISLIKE VERY MUCH 2 | DISLIKE MODERATELY 3 | DISLIKE SLIGHTLY 4 | NEITHER LIKE NOR DISLIKE 5 | LIKE SLIGHTLY 6 | LIKE MODERATELY 7 | LIKE VERY MUCH 8 | LIKE EXTREMELY 9

MRE ITEMS	0	1	2	3	4	5	6	7	8	9
29. Grape Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
30. Orange Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
31. Lemon-Lime Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
32. Cherry Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
33. Cocoa	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
34. Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
35. Tootsie Roll	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
36. Charms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
37. M & M's	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Caramel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Gum	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. Hot Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Cream Substitute	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
42. Sugar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
43. Salt	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
44. Additional Items _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
45. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
46. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

10. Do you think any food or beverages should be DROPPED from the T Ration?

☒ YES ☐ NO

If YES, please list the item(s). _____

11. Do you think any food or beverages should be DROPPED from the MRE?

☐ YES ☐ NO

If YES, please list the item(s). _____

12. Do you think any food or beverages should be ADDED to the T Ration?

☐ YES

☐ NO

If YES, please list the item(s). _____

13. Do you think any food or beverages should be ADDED to the MRE?

☐ YES

☐ NO

If YES, please list the item(s). _____

14. If you could have your choice, pick which ration (MRE or T-Ration) you would like to have for breakfast, lunch, and dinner. Fill in one bubble for each meal.

	MRE	T-RATION
a. Breakfast	☐	☐
b. Lunch	☐	☐
c. Dinner	☐	☐

15. For the following questions, use the scale below to indicate your opinion of the MRE and T-Rations.

Never Tried	Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like Nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
0	1	2	3	4	5	6	7	8	9

How much did you like or dislike the APPEARANCE?

	0	1	2	3	4	5	6	7	8	9
T-Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

How much did you like or dislike the VARIETY OF FOODS?

	0	1	2	3	4	5	6	7	8	9
T-Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

OVERALL, how much did you LIKE the two rations?

	0	1	2	3	4	5	6	7	8	9
T-Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

16. Please use the following scale to rate the PORTION SIZES of the following T-RATION items?

MUCH TOO SMALL 1 SOMEWHAT TOO SMALL 2 JUST RIGHT 3 SOMEWHAT TOO LARGE 4 MUCH TOO LARGE 5

	1	2	3	4	5
Entrees (main dish)	☐	☐	☐	☐	☐
Starches (potato, macaroni, rice)	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐
Fruits	☐	☐	☐	☐	☐
Desserts	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

17. Please use the following scale to rate the PORTION SIZES of the following MRE items?

MUCH TOO SMALL 1 SOMEWHAT TOO SMALL 2 JUST RIGHT 3 SOMEWHAT TOO LARGE 4 MUCH TOO LARGE 5

	1	2	3	4	5
Entrees (main dish)	☐	☐	☐	☐	☐
Starches (potatoes, crackers)	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐
Fruits	☐	☐	☐	☐	☐
Desserts	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

18. During this exercise, what was the average TEMPERATURE of the main dish of the T-Ration:

WHEN IT WAS SERVED?

☐ a. Cold
☐ b. Cool
☐ c. Neutral
☐ d. Warm
☐ e. Hot

WHEN YOU ATE IT?

☐ a. Cold
☐ b. Cool
☐ c. Neutral
☐ d. Warm
☐ e. Hot

19. On the average, how much time were you allowed to eat a meal? (please specify) _____ minutes

20. How much time would you LIKE to have to eat a meal? (please specify) _____ minutes

21. When you ate the following meals did you usually: (fill in all that apply)

	BREAKFAST	LUNCH	DINNER
a. Relax and enjoy your meal time	☐	☐	☐
b. Work	☐	☐	☐
c. Move while eating	☐	☐	☐
d. Have to eat quickly	☐	☐	☐
e. Other (specify) _____	☐	☐	☐

DO NOT WRITE IN THIS BOX	19.	0	1	2	3	4	5	6	7	8	9	20.	0	1	2	3	4	5	6	7	8	9

22. How often have you had the T-Ration before this exercise?

- ☐ a. Never
☐ b. Once
☐ c. Several times
☐ d. Many times

23. Did you eat any food during this exercise other than the rations provided? ☐ YES ☐ NO

If YES, please list the foods, how much you ate of each, and how often you ate them.

FOOD	HOW MUCH	HOW MANY TIMES

24. What do you like the most about the T-Ration?

25. What do you like the least about the T-Ration?

26. Do you have any other comments about the MRE or T-Ration?

APPENDIX K. Test Group Final Questionnaire

Appendix K

TRAY RATION FINAL QUESTIONNAIRE

Thank you for participating in our T-Ration evaluation. We would like to ask you your overall opinion of the T-Ration. Your opinions will be very important in determining any changes that will be made in the ration. Your answers will be kept confidential. Please answer honestly and thoughtfully.

1. Your name: _____
2. Your Social Security Number (Last four digits only): _____
3. Your rank: E-_____ W-_____ O-_____
4. Your Company: _____ Platoon: _____
5. Do you think you gained or lost weight during this exercise?

☐ Gained ☐ Lost ☐ Neither gained nor lost weight

If you think you GAINED weight,
what were some of the reasons?

- ☐ a. Ate too much food
- ☐ b. Drank too much water/beverage
- ☐ c. Too little physical activity
- ☐ d. Other (specify) _____

If you think you LOST weight,
what were some of the reasons?

- ☐ a. Ate too little food
- ☐ b. Drank too little water/beverage
- ☐ c. Too much physical activity
- ☐ d. Other (specify) _____

6. How easy/difficult was it to obtain water? Fill in the circle under your answer.

Extremely Difficult	Moderately Difficult	Somewhat Difficult	Neither Easy Nor Difficult	Somewhat Easy	Moderately Easy	Extremely Easy
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

7. How did you obtain water? Fill in the circle next to all answers that apply.

- ☐ a. From a stream
- ☐ b. From a lake or pond
- ☐ c. 5 gallon cans
- ☐ d. Water Buffalo
- ☐ e. Other (please write in) _____

DO NOT WRITE BELOW THIS LINE

GP
A ☐
B ☐

SUBJ

0	1	2	3	4	5	6	7	8	9

E
O
WO

1	2	3	4	5	6	7	8	9	

B
P
S

0	1	2	3	4	5	6	7	8	9

8. We would like your honest evaluation of the T-Ration items you ate during this exercise.

Using the scale below, please fill in the circle below the number that best describes your opinion of each item. If you never tried an item, fill in the circle under "0".

NEVER TRIED	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9
T RATION BREAKFAST ITEMS									
1. Western Omelet									
2. Omelet with Sausage and Potatoes									
3. Bread Pudding									
4. Omelet with Bacon Pieces									
5. Creamed Ground Beef									
6. Pork Patties									
7. Creamed Chipped Beef									
8. Omelet with Bacon and Cheese									
9. Eggs and Ham									
10. Potatoes with Bacon Pieces									
11. Ham Slices									
12. Pork Sausage Links									
13. Corned Beef Hash									
14. Wheat Bread									
15. White Bread									
16. Biscuits									
17. Apple Coffee Cake									
18. Blueberry Cake									
19. Cinnamon Crumb Cake									
20. Peaches in Syrup									
21. Fruit Cocktail									
22. Pears in Syrup									
23. Maple Syrup									
24. Hot Sauce									
25. Orange Juice									
26. Grape Juice									
27. White Milk									
28. Chocolate Milk									
29. Coffee									
30. Cocoa									
31. Peaches and Cream Oatmeal									
32. Cinnamon and Spice Oatmeal									
33. Raisin and Spice Oatmeal									
34. Strawberry Oatmeal									
35. Maple and Brown Sugar Oatmeal									
36. Apple Cinnamon Oatmeal									

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NEVER TRIED | DISLIKE EXTREMELY | DISLIKE VERY MUCH | DISLIKE MODERATELY | DISLIKE SLIGHTLY | NEITHER LIKE NOR DISLIKE | LIKE SLIGHTLY | LIKE MODERATELY | LIKE VERY MUCH | LIKE EXTREMELY

0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

T RATION BREAKFAST ITEMS

	0	1	2	3	4	5	6	7	8	9
37. Apple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Orange	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Pears	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. Banana	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Frosted Krispies	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
42. Sugar Smacks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
43. Fruit Loops	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
44. Frosted Flakes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
45. Corn Pops	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Additional Breakfast Items	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

T RATION DINNER ITEMS

	0	1	2	3	4	5	6	7	8	9
1. Lasagna	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Beef Pot Roast	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Hamburger	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Turkey Slices	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Chicken Breast Patties	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. BBQ Pork Ribs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Chicken Chow Mein	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Chicken Cacciatore	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9. Chicken Breast with Gravy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10. Barbecue Pork	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11. Beef Strips with Peppers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12. Chili Con Carne	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13. Beef Tips with Gravy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14. Green Beans	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15. White Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16. Potatoes with Butter Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17. Beans with Bacon Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18. Mixed Vegetables	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19. Corn	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20. Oriental Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21. Glazed Sweet Potatoes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22. Macaroni and Cheese	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23. Peas with Carrots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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NEVER TRIED 0 | DISLIKE EXTREMELY 1 | DISLIKE VERY MUCH 2 | DISLIKE MODERATELY 3 | DISLIKE SLIGHTLY 4 | NEITHER LIKE NOR DISLIKE 5 | LIKE SLIGHTLY 6 | LIKE MODERATELY 7 | LIKE VERY MUCH 8 | LIKE EXTREMELY 9

T RATION DINNER ITEMS

	0	1	2	3	4	5	6	7	8	9
24. Wheat Bread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25. White Bread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26. Hamburger Roll	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27. Chocolate Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
28. Blueberry Dessert	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
29. Pound Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
30. Chocolate Crumb Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
31. Marble Crumb Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
32. Chocolate Pudding	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
33. Marble Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
34. Spice Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
35. Fruit Cocktail	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
36. Applesauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
37. Grape Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Lemon-Lime Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Orange Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. White Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Chocolate Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
42. Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
43. Cherry Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
44. Lemonade Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
45. Lemon Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
46. Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
47. Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
48. Hot Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
49. Ketchup	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
50. Mustard	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
51. Relish	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
52. Cheese Spread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
53. Salad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
54. Thousand Island Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
55. Plain Salad Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
56. French Dressing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
57. Apple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
58. Orange	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
59. Pear	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
60. Banana	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Additional Dinner Items	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9. We would like your honest evaluation of the MRE items you ate. Using the scale below, please fill in the circle below the number that best describes your opinion of each item. If you never tried an item, fill in the circle under "0".

NEVER TRIED	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9

MRE ITEMS

	0	1	2	3	4	5	6	7	8	9
1. Pork w/ Rice and BBQ Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Corned Beef Hash	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Chicken Stew	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Omelet with Ham	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Spaghetti with Meat Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. Chicken a la King	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Beef Stew	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Ham Slice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9. Meatballs with Rice and Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10. Tuna with Noodles	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11. Chicken and Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12. Escaloped Potatoes with Ham	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13. Crackers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14. Potato au Gratin	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15. Cheese Spread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16. Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17. Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18. Applesauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19. Fruit Mix	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20. Peaches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21. Pears	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22. Strawberries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23. Brownie	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
24. Cherry Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25. Chocolate Covered Cookie	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26. Maple Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27. Oatmeal Cookie Bar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
28. Chocolate Nut Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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NEVER TRIED | DISLIKE EXTREMELY | DISLIKE VERY MUCH | DISLIKE MODERATELY | DISLIKE SLIGHTLY | NEITHER LIKE NOR DISLIKE | LIKE SLIGHTLY | LIKE MODERATELY | LIKE VERY MUCH | LIKE EXTREMELY
0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

MRE ITEMS	0	1	2	3	4	5	6	7	8	9
29. Grape Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
30. Orange Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
31. Lemon-Lime Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
32. Cherry Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
33. Cocoa	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
34. Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
35. Tootsie Roll	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
36. Charms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
37. M & M's	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
38. Caramel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
39. Gum	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
40. Hot Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
41. Cream Substitute	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
42. Sugar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
43. Salt	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
44. Additional Items _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
45. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
46. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

10. Do you think any food or beverages should be DROPPED from the T Ration?

☐ YES ☐ NO

If YES, please list the item(s). _____

11. Do you think any food or beverages should be DROPPED from the MRE?

☐ YES ☐ NO

If YES, please list the item(s). _____

12. Do you think any food or beverages should be ADDED to the T Ration?

☐ YES ☐ NO

If YES, please list the item(s). _____

13. Do you think any food or beverages should be ADDED to the MRE?

☐ YES ☐ NO

If YES, please list the item(s). _____

14. If you could have your choice, pick which ration (MRE or T-Ration) you would like to have for breakfast, lunch, and dinner. Fill in one bubble for each meal.

	MRE	T-RATION
a. Breakfast	☐	☐
b. Lunch	☐	☐
c. Dinner	☐	☐

15. For the following questions, use the scale below to indicate your opinion of the MRE and T-Rations.

Never Tried	Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like Nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
0	1	2	3	4	5	6	7	8	9

How much did you like or dislike the APPEARANCE?

	0	1	2	3	4	5	6	7	8	9
T- Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

How much did you like or dislike the VARIETY OF FOODS?

	0	1	2	3	4	5	6	7	8	9
T- Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

OVERALL, how much did you LIKE the two rations?

	0	1	2	3	4	5	6	7	8	9
T- Ration	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

16. Please use the following scale to rate the PORTION SIZES of the following T-RATION items?

MUCH TOO SMALL 1 SOMEWHAT TOO SMALL 2 JUST RIGHT 3 SOMEWHAT TOO LARGE 4 MUCH TOO LARGE 5

	1	2	3	4	5
Entrees (main dish)	☐	☐	☐	☐	☐
Starches (potato, macaroni, rice)	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐
Fruits	☐	☐	☐	☐	☐
Desserts	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

17. Please use the following scale to rate the PORTION SIZES of the following MRE items?

MUCH TOO SMALL 1 SOMEWHAT TOO SMALL 2 JUST RIGHT 3 SOMEWHAT TOO LARGE 4 MUCH TOO LARGE 5

	1	2	3	4	5
Entrees (main dish)	☐	☐	☐	☐	☐
Starches (potatoes, crackers)	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐
Fruits	☐	☐	☐	☐	☐
Desserts	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

18. During this exercise, what was the average TEMPERATURE of the main dish of the T-Ration:

WHEN IT WAS SERVED?

☐	a. Cold
☐	b. Cool
☐	c. Neutral
☐	d. Warm
☐	e. Hot

WHEN YOU ATE IT?

☐	a. Cold
☐	b. Cool
☐	c. Neutral
☐	d. Warm
☐	e. Hot

19. On the average, how much time were you allowed to eat a meal? (please specify) _____ minutes

20. How much time would you LIKE to have to eat a meal? (please specify) _____ minutes

21. When you ate the following meals did you usually: (fill in all that apply)

	BREAKFAST	LUNCH	DINNER
a. Relax and enjoy your meal time	☐	☐	☐
b. Work	☐	☐	☐
c. Move while eating	☐	☐	☐
d. Have to eat quickly	☐	☐	☐
e. Other (specify) _____	☐	☐	☐

DO NOT WRITE IN THIS BOX	19. 0 1 2 3 4 5 6 7 8 9	20. 0 1 2 3 4 5 6 7 8 9																	
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

22. How often have you had the T-Ration before this exercise?

☐ a. Never

☐ b. Once

☐ c. Several times

☐ d. Many times

23. Each of the following items that you ate during the test were new to the T Ration. Please indicate whether you liked them better, worse, or the same as you EXPECTED

	BETTER THAN EXPECTED	WORSE THAN EXPECTED	SAME AS EXPECTED
1. Pork Patties	☐	☐	☐
2. Creamed Chipped Beef	☐	☐	☐
3. Hamburgers	☐	☐	☐
4. Turkey Slices	☐	☐	☐
5. Chicken Breast Patties	☐	☐	☐
6. BBQ Pork Ribs	☐	☐	☐
7. Chicken Chow Mein	☐	☐	☐
8. Oriental Rice	☐	☐	☐
9. Biscuits	☐	☐	☐
10. Chocolate Crumb Cake	☐	☐	☐
11. Marble Crumb Cake	☐	☐	☐
12. Cinnamon Crumb Cake	☐	☐	☐

24. Did you eat any food during this exercise other than the rations provided? ☐ YES ☐ NO

If YES, please list the foods, how much you ate of each, and how often you ate them.

[illegible]

25. What do you like the most about the T-Ration?

26. What do you like the least about the T-Ration?

27. Do you have any other comments about the MRE or T-Ration?

APPENDIX L. Flameless Ration Heater Questionnaire

Appendix L

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER is currently conducting an evaluation of the Flameless Ration Heater (FRH). This questionnaire asks you to evaluate how useful the FRH is for heating the Meal, Ready-to-Eat (MRE). Your answers will help developers provide you with a better field feeding system. Please answer honestly and thoughtfully. To make your answers confidential, we have not asked for your name or social security number. Thank you.

Age? _____ years

What is your rank? E-_____ O-_____ WO-_____

How long have you been in the Armed Services? _____ years _____ months

What is your MOS/RATING?

Please describe the type(s) of field situation(s) in which you used the Flameless Ration Heater. Include location, your job, tasks, etc.
(For example, Ft. Carson, Tank Commander/M60A3, Offensive Maneuvers)

Over what period of time did you use the FRH to heat your MREs?
(Please specify dates as accurately as possible).

Between _____ and _____.

1. Did you use the Flameless Ration Heater (FRH) to heat your MRE entree?

YES

NO

If NO, please turn in your questionnaire now.

2. In what types of climates did you use the FRH? Circle ALL that apply.

- | | |
|-------------------------|-----------------------|
| a. Hot, dry weather | d. Cold, dry weather, |
| b. Hot, humid weather | e. Cold, wet weather |
| c. Temperate Conditions | |

3. In what temperatures ($^{\circ}$ Fahrenheit) did you usually use the FRH? Circle ONE answer only.

- | | |
|---|--|
| a. Extremely Hot (above 95° F) | e. Cold (32° F to 59° F) |
| b. Very Hot (85° F to 95° F) | f. Very Cold (0° F to 31° F) |
| c. Hot (75° F to 84° F) | g. Extremely Cold (below 0° F) |
| d. Moderate (60° F to 74° F) | h. The weather was very
inconsistent in temperature |

4. Approximately how many times have you used FRHs to heat MRE entrees?

_____ times

If you used it less than 10 times, what was the biggest reason why?

—For questions 5 through 9, circle one response from the scale below.—

5. After heating with the FRH, what was the temperature of the MRE entree?

COLD	COOL	NEITHER WARM NOR COOL	WARM	HOT
1	2	3	4	5

6. How does the MRE entree taste when you've heated it with the FRH, compared to eating the MRE entree cold:

The FRH made the MRE entree taste:

MUCH WORSE	MODERATELY WORSE	SLIGHTLY WORSE	ABOUT THE SAME	SLIGHTLY BETTER	MODERATELY BETTER	MUCH BETTER
1	2	3	4	5	6	7

7. Please indicate how slow or fast you felt it took to heat the MRE entree using the FRH.

VERY SLOW	MODERATELY SLOW	SLIGHTLY SLOW	NEITHER SLOW NOR FAST	SLIGHTLY FAST	MODERATELY FAST	VERY FAST
1	2	3	4	5	6	7

8. How easy or difficult is it to use the FRH to heat the MRE entree?

VERY DIFFICULT	MODERATELY DIFFICULT	SLIGHTLY DIFFICULT	NEITHER DIFFICULT NOR EASY	SLIGHTLY EASY	MODERATELY EASY	VERY EASY
1	2	3	4	5	6	7

9. Please rate the overall acceptability for use of the FRH in the field.

VERY BAD	MODERATELY BAD	SLIGHTLY BAD	NEITHER BAD NOR GOOD	SLIGHTLY GOOD	MODERATELY GOOD	VERY GOOD
1	2	3	4	5	6	7

10. Were any of the following a problem for you while using the FRH to heat the MRE entree? Check ONE for each item.

	NOT A PROBLEM	SLIGHT PROBLEM	MODERATE PROBLEM	LARGE PROBLEM
a. Adding water to bag	_____	_____	_____	_____
b. Too hot to handle	_____	_____	_____	_____
c. FRH not heating up	_____	_____	_____	_____
d. Smell produced during heating	_____	_____	_____	_____
e. Water spilling out of plastic bag	_____	_____	_____	_____
f. Residue or foam caused by heating process	_____	_____	_____	_____
g. Other (Specify:_____)	_____	_____	_____	_____

11. Did you get burned while using/handling the FRH?

YES NO

If YES, to what extent? Circle one response.

- a. Skin was sore for a little while
- b. Skin blistered
- c. Medical attention was required

12. If an FRH were packaged with each MRE, how often do you think you would use it to heat the MRE entree? Circle one response.

NEVER	ALMOST NEVER	SOMETIMES	ALMOST ALWAYS	ALWAYS
1	2	3	4	5

13. If FRHs were not packaged with the MRE but were made available separately for your use, how often do you think you would heat your MRE entree with the FRH? Circle one response.

- a. I would never use the FRH to heat the MRE entree.
- b. I would use the FRH to heat one out of every three MRE entrees that I eat.
- c. I would use the FRH to heat every other MRE entree that I eat (one out of every two).
- d. I would use the FRH to heat every MRE entree that I eat.
- e. Other (Specify:_____)

14. Which method of packaging would you prefer? Circle one response only.

- a. FRH packaged with the MRE
- b. FRH packaged separately from the MRE

Please explain why in the space provided below.

15. For what reasons would you NOT use the FRH to heat the MRE entree? Please circle ALL that apply.

- a. I would almost always use them
- b. Too complicated
- c. Doesn't heat well
- d. Mission does not allow extra time in which to use FRH
- e. FRH takes too long to heat food
- f. Wouldn't waste water for heating
- g. Produces bad smell
- h. Creates a mess
- i. Prefer other methods of heating (Specify: _____)
- j. Other (Specify: _____)

16. If you were not able to use the FRH to heat the MRE entree, would you save it for later or throw it away? Circle one response.

SAVE IT

THROW IT AWAY

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**APPENDIX M. Field Acceptability of T Ration Breakfast
Items for Both Groups**

Appendix M

Field Acceptability of T Ration Breakfast Items for Both Groups

	TEST GROUP		CONTROL GROUP		t	df
	MEAN	SD	MEAN	SD		
ENTREES						
Western Omelet	5.6	2.1	6.8	1.3	3.01	57
Omelet w/ Sausage and Potatoes	6.1	1.7	6.5	1.8	ns	-
Bread Pudding	4.1	2.0	5.1	2.7	ns	-
Omelet w/ Bacon Pieces	-	-	7.1	1.2	-	-
Pork Patties	5.3	2.3	-	-	-	-
Creamed Chipped Beef**	5.0	2.7	-	-	-	-
Creamed Ground Beef	-	-	7.2	1.3	-	-
Omelet w/ Bacon and Cheese	-	-	7.3	1.0	-	-
Potatoes w/ Bacon Pieces	5.4	2.0	-	-	-	-
Ham Slices	5.8	1.6	6.0	1.5	ns	-
Pork Sausage Links	-	-	7.2	1.2	-	-
STARCHES						
Wheat Bread	7.2	1.2	7.1	1.6	ns	-
White Bread	6.7	1.1	7.0	1.2	ns	-
Biscuits	3.8	1.7	-	-	-	-
Apple Coffee Cake	6.1	1.9	5.6	2.4	ns	-
Blueberry Cake	5.7	2.2	7.5	1.3	3.97	50
Cinnamon Crumb Cake*	7.6	1.2	-	-	-	-
Potatoes w/ Butter Soc.	-	-	7.3	1.2	-	-
FRUITS						
Peaches in Syrup	7.1	1.5	7.8	1.6	ns	-
Fruit Cocktail	7.2	1.4	8.0	0.7	2.67	49
Pears in Syrup	-	-	7.2	2.3	-	-
Apple	-	-	7.8	1.4	-	-
Pear	7.2	1.2	7.5	0.8	ns	-
Banana	7.8	7.8	7.6	1.7	ns	-
SPREADS						
Maple Syrup	5.8	2.1	6.6	1.4	ns	-
CEREALS						
Strawberry and Cream Oatmeal	-	-	7.3	1.9	-	-
Apple Cinnamon Oatmeal	-	-	8.0	1.0	-	-
Frosted Krispies	7.8	1.1	8.1	0.9	ns	-
Corn Pops	7.9	1.3	8.5	0.6	2.37	35
BEVERAGES						
Orange Juice	6.4	1.6	6.4	1.7	ns	-
Grape Juice	7.0	1.2	7.7	1.3	2.19	51
White Milk	6.7	1.3	6.9	1.7	ns	-
Chocolate Milk	6.1	2.5	7.0	1.9	ns	-
Coffee	7.5	1.0	8.3	0.9	2.48	31
Cocoa	7.6	1.0	8.1	1.0	-	-

*Tray Pack Test Items

**Institutional Pouch Test Items

**APPENDIX N. Field Acceptability of T Ration
Dinner Items for Both Groups**

Appendix N

Field Acceptability of T Ration Dinner Items for Both Groups

	TEST GROUP		CONTROL GROUP			
	MEAN	SD	MEAN	SD	t	df
ENTREES						
Lasagna	6.0	1.9	8.2	0.9	6.21	69
Beef Pot Roast	5.5	2.5	7.1	1.3	3.39	73
Hamburger	7.1	1.5	7.3	1.3	ns	-
Turkey Slices	7.3	1.2	7.1	1.4	ns	-
Chicken Chow Mein*	6.9	1.4	-	-	-	-
Chicken Breast Patties*	6.6	1.7	-	-	-	-
Boneless BBQ Pork Ribs	6.1	2.1	-	-	-	-
Chicken Cacciatore	-	-	6.4	2.5	-	-
STARCHES						
White Rice	5.5	2.0	7.4	1.7	4.23	69
Potatoes w/ Butter Sauce	6.7	1.9	6.7	1.6	ns	-
Wheat Bread	7.4	1.1	7.5	1.3	ns	-
White Bread	6.6	1.1	7.3	1.2	2.26	73
Oriental Rice*	7.1	1.4	-	-	-	-
Hamburger Roll	6.2	1.9	-	-	-	-
VEGETABLES						
Green Beans	5.7	1.7	6.3	1.5	ns	-
Beans w/ Bacon Sauce	6.6	1.7	7.3	1.3	ns	-
Salad	6.9	1.1	7.2	1.2	ns	-
Mixed Vegetables	-	-	6.6	1.7	-	-
Corn	6.8	1.2	-	-	-	-
Pea and Carrots	5.2	2.1	-	-	-	-
FRUITS						
Fruit Cocktail	7.2	1.2	7.8	0.9	ns	-
Apple	6.5	2.2	-	-	-	-
Orange	7.3	1.7	-	-	-	-
Pear	7.2	1.0	7.7	1.8	ns	-
Banana	7.1	2.0	7.7	1.9	ns	-
DESSERTS						
Chocolate Cake	3.9	1.8	2.1	1.6	4.15	62
Pound Cake	7.4	1.6	5.4	2.1	4.62	69
Marble Crumb Cake*	6.9	2.0	-	-	-	-
Chocolate Crumb Cake*	6.3	2.2	-	-	-	-
BEVERAGES						
Orange Beverage	-	-	6.9	1.5	-	-
White Milk	6.3	1.9	6.6	2.0	ns	-
Chocolate Milk	6.4	1.9	7.3	2.0	ns	-
Coffee	7.0	2.2	7.7	1.3	ns	-
Grape Beverage	-	-	7.4	1.5	-	-
SPREADS						
Peanut Butter	7.2	1.4	7.7	1.2	ns	-
Jelly	7.3	1.0	7.6	1.4	ns	-
Cheese Spread	-	-	7.1	1.9	-	-
OTHER						
Thousand Island Dressing	-	-	7.2	1.3	-	-
French Dressing	6.8	1.7	7.3	1.3	ns	-

* Tray Pack Test Items

**APPENDIX O. Field Acceptability of Meal, Ready-to-Eat
Items for Both Groups**

Appendix O

Field Acceptance of Meal, Ready-to-Eat Items for Both Groups

	TEST GROUP		CONTROL GROUP			
	MEAN	SD	MEAN	SD	t	df
ENTREES						
Corned Beef Hash	6.4	2.2	5.99	2.31	ns	-
Chicken Stew	6.4	1.7	7.61	1.51	2.45	44
Omelet w/Ham	6.4	2.6	6.62	2.25	ns	-
Chicken a la King	6.6	1.6	7.08	1.6	ns	-
Beef Stew	7.3	1.4	7.63	0.89	ns	-
Meatballs, Rice and Sce	6.7	1.2	6.76	2.28	ns	-
STARCHES						
Crackers	6.6	1.3	7.00	1.24	ns	-
Potato au Gratin	-	-	7.66	1.1	-	-
SPREADS						
Cheese Spread	7.0	1.3	8.11	0.82	3.36	36
Jelly	7.2	1.2	7.44	1.33	ns	-
Peanut Butter	6.5	1.3	7.44	0.8	3.28	47
FRUITS						
Peaches	7.0	1.4	7.47	1.1	ns	-
Pears	6.9	1.5	7.07	1.2	ns	-
Fruit Mix	7.5	0.9	7.3	1.1	ns	-
DESSERTS						
Choc. Covered Cookie	7.5	1.0	7.72	1.1	ns	-
Cherry Nut Cake	7.1	1.5	7.52	1.4	ns	-
Oatmeal Cookie Bar	6.9	1.9	7.41	1.5	ns	-
BEVERAGES						
Cocoa	7.9	1.2	8.23	0.6	ns	-
Grape Beverage	7.0	1.3	7.81	1.1	2.41	51
Lemon-Lime Beverage	7.4	1.1	7.06	1.3	ns	-
Orange Beverage	7.3	1.1	7.84	1.2	ns	-
CANDY						
M&M's	7.2	2.0	7.93	2.2	ns	-
Caramel	7.8	1.2	8.71	0.6	2.61	21
Charms	7.8	1.2	8.01	1	ns	-
Gum	7.7	1.1	7.76	1.3	ns	-
OTHER						
Hot Sauce	7.7	1.1	8.28	0.7	ns	-
Cream Substitute	6.9	1.2	7.71	1.2	ns	-
Sugar	7.1	1.3	7.8	1	ns	-
Salt	6.8	1.6	7.05	1.2	ns	-

APPENDIX P. Field Acceptability of T Ration and MRE Components

Appendix P

Field Acceptability of Ration Components

	TEST GROUP		CONTROL GROUP			
	MEAN	SD	MEAN	SD	t	df
T RATION BREAKFAST						
Entrees	5.3	1.5	6.7	1.5	5.32	61
Starches	5.5	1.4	7.2	1.0	5.99	67
Desserts	6.5	1.3	6.3	2.2	ns	-
Beverages	6.8	1.2	7.2	1.1	ns	-
Fruits	7.2	1.4	7.6	0.98	ns	-
Cereals	7.7	1.1	8.0	0.90	ns	-
Other	5.8	2.1	6.0	1.4	ns	-
T RATION DINNER						
Entrees	6.6	1.4	7.2	0.82	2.37	62
Starches	6.6	1.1	7.2	1.1	2.47	77
Desserts	6.2	1.3	4.6	1.3	5.40	76
Vegetables	6.3	1.1	6.8	0.96	2.23	75
Beverages	6.6	1.6	7.1	1.3	ns	-
Spreads	7.2	1.3	7.6	1.5	ns	-
Fruits	7.1	1.2	7.8	0.98	2.78	74
Other	7.3	1.4	7.4	1.3	ns	-
MEAL, READY-TO-EAT						
Entrees	6.6	1.2	7.1	1.0	ns	-
Starches	6.6	1.3	7.0	1.2	ns	-
Spreads	6.9	1.2	7.7	0.71	3.51	59
Fruits	7.1	1.1	7.3	1.0	ns	-
Desserts	7.1	1.6	7.4	1.2	ns	-
Hot Beverages	7.9	1.2	8.2	0.56	ns	-
Cold Beverages	7.1	1.1	7.5	1.0	ns	-
Candy	7.6	1.0	8.0	0.95	ns	-
Other	7.3	1.1	7.8	0.88	ns	-