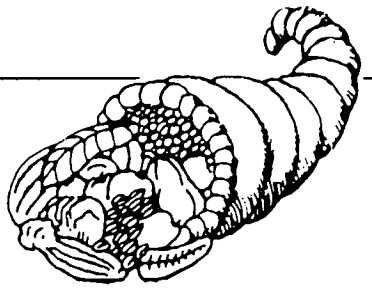
THE MCDOUGALL NEWSLETTER



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INFORMATION

U.S. SOLDIER'S DIET

MRE

MRE stands for "Meal, Ready to Eat," jokingly referred to by many of the soldiers who have tasted them as "Meals Rejected by Ethiopia." These compact and "nutritionally complete" meals are packaged in a 6 x 8 inch brown opaque pouch, stamped with words identifying the contents. Within this pouch are individual packages containing components of the meal. (The following information was obtained from military documents.)

A MRE is made of combinations from the following groups:

Main Dishes:
Pork with Rice
Corned Beef Hash
Chicken Stew
Omelet with Ham
Spaghetti with Meat and Sauce
Chicken Ala King
Beef Stew
Ham Slice
Meat Balls, Beef & Rice in Spicy Tomato Sauce
Tuna with Noodles
Chicken and Rice
Escalloped Potatoes with Ham
(Meat from pigs is not allowed in Saudi Arabia: therefore the ham and pork selections are deleted, leaving eight selections.)

Side Dishes:
Apple sauce
Pears (freeze dried)
Peaches (freeze dried)
Fruit Mix (freeze dried)
Potato Augratin

Spreads:
Jelly
Peanut Butter
Soft Cheese

Snacks and Desserts:
Crackers
Oatmeal Cookie Bar
Maple Nut Cake
Cherry Nut Cake
Chocolate Nut Cake
Cookie
Brownie
Candy

Beverages:
Coffee
Cocoa
Beverage Powder (like Kool-Aid, orange, grape, or cherry flavors)

Accessory Packet: (included within MRE pack)
Cream Substitute
Sugar
Salt
Matches
Toilet Tissue
Chewing Gum
Towelette
Hot Sauce
Knife, Fork, Spoon and Napkin

Nutritional Composition: (Information from military documents)

These meals are moderately high in fat (38%) and protein (16%) and high in refined carbohydrates and simple sugars (total carbohydrates 46%). Energy-concentrated, empty calories from fats and sugars make these meals compact. Consider, there are more calories from the sugar-based jelly (75) than the pears (58); and more from the fat-filled cheese spread (169) than the potatoes augratin (151). Breakfast, lunch, and dinner are calculated to provide 4093 calories, about 6000 mg of sodium, and 300 to 500 mg of cholesterol per day (Based on 2 T-rations and 1 MRE). MREs are very low in dietary fiber. Recall there is no fiber in meat, poultry, fish, dairy, candy, jelly, sugar, beverage powder, and cocoa; and very little fiber in the noodles, white rice, brownies, cookies and crackers. Only one or two small portions of food with significant sources of dietary fiber--fruit, potato, oatmeal cookie, or nut cake--are served daily. The amount of fiber in these sources is small: applesauce (1.4 grams), peaches (.5 grams) pears (2 grams). (Although the information is not provided in the nutrient documents for MRE, I calculate the daily dietary fiber intake for soldiers is less than 5 grams a day. The standard American diet provides about 10 grams of dietary fiber, and a starch-based diet has 60 grams.)

Philosophy of Meals:

(This information is from interviews of military dietitians and doctors.)

Prior to the MRE rations, meals for the soldiers were supplied in thick metal (tin) cans. These were heavy, and hard for the soldier to transport because of their cylindrical rigid-shape. In the early 1970s the can industry went to lighter weight canning material, which was not suitable for the long term storage requirements of the military. Therefore, a trilaminate material was developed with an inner and outer sheet of heavy plastic which provides strength and durability, sandwiching a central sheet of aluminum which keeps the oxygen and bacteria out of the food. Production began in 1980.

According to nutritional experts (dietitians), the MRE meals are designed to be "nutritionally complete," as well as compact for efficient storage and easy transport. They meet all the requirements for calories, protein, fat, vitamins and minerals. The foods are selected to provide generous amounts of calories for the active soldier even in cold climate military operations. The meals are packaged to withstand heat, cold, moisture and time. They must last for a minimum of 3 years at 80 degrees Fahrenheit. At cooler storage temperatures they last longer. One soldier told me he recently ate one with a manufacture date of 1983.

One navy doctor explained the rational for the low fiber

content of the foods: With little dietary fiber the soldiers have fewer bowel movements in the field. This means fewer latrine holes; which is important because each hole in the ground leaves a trail for enemy soldiers to follow. The other advantage of fewer bowel movements, I was told, is fewer sanitation problems, and therefore, less chance for transmission of disease.

Meal Preparation:

The meals can be heated by placing them in canteen water and heating with Sterno. Recently, a magnesium-iron alloy which undergoes a thermic reaction with water has been used to heat the submerged MRE. The plastic bag is not flame resistant, but can be carefully heated when held 6 to 8 inches from a flame. Soldiers sometimes place their MREs on the hot manifold of their truck's engine or on tin roofs heated by the intense desert sun for a quick warming. However, in the battlefield their food is usually eaten at the temperature of the surrounding air.

MREs are not the only foods provided the soldiers. They have T (tray)-Ration Menus consisting of 12-18 servings of of entrees packed on ready to heat trays. Local foods are also obtained from the Saudi Arabia markets. However, out in the field MRE is the fare three times a day.

McDougall's Contribution:

Besides the military advantages suggested for these low-fiber, high-calorie, high-fat MRE meals, they are also causing serious health problems for the soldiers.

Constipation is a universal complaint. (This was told to me by all the doctors and dietitians I interviewed). Laxatives are the only means of relief for many soldiers bound up for 3, 4 or more days because of the virtual absence of dietary fiber in their meals. This severe constipation causes the soldier to strain with each attempt at a bowel movement. Because of the difficulty in passage, a long time is spent at the toilet--this is certainly not efficient and probably not safe under battle conditions. All that straining effort damages the hemorrhoid veins, resulting in painful, bulging, bleeding, itching hemorrhoids. Many soldiers are also suffering from tears in the anal area, called anal fissures, caused by passing hard dry stools. (So now you know that Saddam Hussein isn't the only pain in this area of the soldier's anatomy.)

Obesity is a long standing problem in the American military. The high-fat, calorie-dense foods served throughout the armed services are the reason for this health problem. Fat soldiers move slower and are less agile; therefore they are more likely to be injured. A high carbohydrate, starch-based, diet leads to effortless and permanent weight loss, especially when combined with exercise.

Our soldiers not only need to be lean, they also must have the endurance of an athlete. People training for triathlons and marathons know about the winning advantage of a high carbohydrate diet and they know about running out of energy, referred to as "hitting the wall," while following a high-fat diet. Why don't those planning military meals understand these simple, well recognized, principles of nutrition?

No matter how much our soldiers exercise and train they will fail to "be all they can be" until they are fed properly with a starch-based diet. Feeding men and women in our military service a condensed packaged version of the standard American diet is as serious a mistake as fueling a 600-horsepower Bradley tank diesel engine with gasoline before sending it into battle.

MEDICAL RESEARCH

MORE GALLSTONES FOR ARABS

Gallstones have become increasingly more common in Saudi Arabia, where cholecystectomy (gallbladder removal) is now one of the commonest major abdominal operations. Between 1977 and 1986 the frequency of cholecystectomy increased by 978%. During the same period the average daily individual consumption of total calories, fat and sugar increased by 81%, 197%, and 164%, respectively. The study, "Increased Cholecystectomy Rates in Saudi Arabia," by Tawfiq Tamimi in the November 1990 issue of Lancet concludes, "This striking increase in the frequency of cholecystectomy, which presumably reflects the incidence of gallstones, cannot be explained by demographic changes and seems more closely linked to the concomitant changes in dietary habits."

Most interesting, 33 years ago, no cholecystectomy operations were done in Riyadh Central Hospital, the largest hospital in Saudi Arabia. Recently there has been a striking increase in gallbladder surgery, particularly among young Saudis. This study of 14 hospitals found that in 1977 only 63 cholecystectomies were performed, but by 1986 the number rose to 676. Calories increased from 1807 to 3265 per day and the percent of fat went from 16% to 25%. High fiber grains decreased to 1/4 their previous consumption. Cholecystectomies were greater among young Saudis and women were more affected than men.

Gallstones are rare to non-existent in people who follow a starch-based diet, worldwide. When these people migrate to the western world, or when their country becomes affluent and modern, gallbladder disease becomes common. Gallstones are made of cholesterol. They result from the changes in the bile that are caused by the high-fat, high-cholesterol, low-fiber western diet.

BREAST FEEDING IN SAUDI ARABIA

In the article "Patterns of Breast Feeding and Weaning in Saudi Arabia," by F. Serenius (Acta Paediatr Suppl 346:121, 1988) bottle feeding was found to be on the rise in the Middle East among the affluent city dwellers. Rural women breastfed for 17.8 months, urban low-income women for 10.8 months, urban average-income for 7.5 months, and urban privileged women for 2.1 months on the average. In other terms, by one month 52% of privileged urban children were started on bottles, yet only 26% of rural children were on bottles by 6 months. In all groups, breastfeeding was lower in the younger than the older mothers.

While mothers of privileged children may have the knowledge and facilities to bottle feed properly, this may not be possible for mothers of less education and from less hygienic conditions. This study reported:
**Less than 14% of mothers who intended to bottle feed in Riyadh could read the instructions.
**Of those who believed they knew how to make up the formula only 18% did it correctly.
**Only 20% of mothers in Riyadh with children sick with gastroenteritis sterilized the bottles and rubber nipple properly.

This pattern of declining breast feeding is common to many third world countries and a threat to the child's life. It is estimated that worldwide more than 1 million children a year under the age of one die as a direct result of contaminated infant formula and the resulting diarrhea and malnutrition. In countries, such as India, bottle feeding has been described as a "virtual death sentence," not simply because of contamination and improper mixing of formula, but because of the loss of benefits provided by breast milk. Breast milk is ideal nutrition for infants (always mixed properly) and provides a wide range of factors active against the bacteria and viruses that cause many diseases, including diarrhea, dehydration, respiratory infections, and death that are so common in underdeveloped nations.

There are also consequences for bottlefed children in modern countries: Crib death (SIDS) is twice as common and the risk of significant illness that requires hospitalization is 2 to 3 times as high for bottlefed infants of privileged mothers living under "sanitary conditions."

Paradoxically, breastfeeding is on the rise in the United States because mothers realize its importance. With this loss of marketplace, the infant formula industry has set its sights on underdeveloped countries in the Middle East, Asia, and Africa. They are successfully convincing women in these countries that the modern thing to do is to bottle feed.

RAMADAN FASTING

Millions of Muslims all over the world fast during the month of Ramadan of the Islamic calender of Hijra. (The Hijra calender is lunar, so the month changes by 11 days each year). Every person over the age of puberty fasts. Fasting is not total, because food and water are taken, usually in two meals, between sunset and dawn (determined by enough light to tell a black from a white thread). Two studies were recently reported on the effects of this partial fast on young male healthy college students from Aleppo, Syria (Hollak, Am J Clin Nutr 48:1197, 1988; M. Zofar, Am J Clin Nutr 49:1141, 1989). A high carbohydrate (traditional diet of the less affluent) was fed during the first two weeks; followed by a high fat "rich" diet the second two weeks. Below is their meal plan (which I found very interesting). Subjects choose the menus by consensus among themselves.

High Carbohydrate diet:
Carbohydrate = 77.1% (53% complex)
Fat = 8.8%
Protein = 14.1%

First Meal (a combination of breakfast (called Fatur) and dinner):
Main dish: one of the five menus listed below was served each day.
1) Lamb meat (lean) with tomato, zucchini, eggplant, onion, and spices.
2) Meat with tomato paste, potato, onion, and spices.
3) Meat with tomato paste, green beans, garlic and spices.
4) Meat with zucchini, chick peas (garbanzo beans), and spices.
5) Meat with rice, nonfat yogurt.
Pita bread (flat wheat bread)
Vegetable salad: parsley, cucumber, onion, tomato, garlic, and spices. No dressing.
Fruits: the main fruits were oranges but cherries, apricots, grapes, and peaches were included. Fruit eaten 2 hours after first meal.
Beverages: coffee or tea and/or soft drink.

Second Meal (Sahur)
Boiled egg (1/day).
Pita bread.
Rose-petal marmalade.
Boiled potato.
Vegetable salad: parsley, cucumber, onion, tomato, garlic, and spices. No dressing.
Beverages: coffee, tea, and/or soft drink
Dessert: Halvah made of wheat, sugar and cinnamon.

High Fat Diet:
Carbohydrate = 34.7% (12.4% complex)
Fat = 51.2%
Protein = 14.1%

First meal (Fatur and dinner):
Main dish: there are seven choices.
1) Meat (with highly visible fat), lamb-fat shortening, flour, onions, spices, and yogurt (4%--high-fat).
2) Meat, bulgur, onion, cottonseed oil, and sesame butter.
4) Meat, rice, zucchini, lamb fat, spices, and yogurt.
3) Meat, chick peas, lamb fat, yogurt, spices, and pickles.
5) Meat, rice, zucchini, eggplant, onion, lamb fat, and spices
6) Meat, tomato paste, green beans, garlic, lamb fat, and spices.
7) Meat, lamb fat, yogurt, and spices.
Pita bread (flat wheat bread)
Vegetable salad: parsley, cucumber, onion, tomato, garlic, spices, and olive oil salad dressing.
Fruits: the main fruits were oranges but cherries, apricots, grapes, and peaches were included. Fruit eaten 2 hours after first meal.
Beverages: coffee or tea and/or soft drink.

Second meal (Sahur)
Boiled egg (1/day).
Pita bread.
Rose-petal marmalade.
Boiled potato.
Vegetable salad: parsley, cucumber, onion, tomato, garlic, spices, and olive oil salad dressing.
Beverages: coffee, tea, and/or soft drink.
Dessert: Halvah made of wheat, sugar and cinnamon.
Milk, ice cream, and cheese.

Their findings are not surprising: Subjects lost weight because they ate two meals instead of the usual three per day. Cholesterol decreased while on the high carbohydrate diet (172 mg/dl), but rose above pre-study levels (186 mg/dl) on the high fat diet (190 mg/dl). LDL "bad" cholesterol decreased from 94 mg/dl to 87 mg/dl on the high carbohydrate diet, but rose to 118 mg/dl after the two weeks on the high fat diet. Triglycerides decreased from 95 mg/dl to 86 mg/dl mid-month to 66 mg/dl at the end.

RECIPES

All recipes are Middle East in origin.

ADAS BI SABAANIKH (Lentil and Spinach Soup)

Servings: 6

1 1/2 cups lentils
8 cups water
1 large onion, chopped

2-3 cloves garlic, crushed
2 bunches spinach, cleaned and chopped
1/2 cup fresh chopped parsley
1/4 tsp. black pepper
1/8 tsp. crushed red pepper
1/4 cup lemon juice

Place lentils and water in a large pot. Bring to a boil, cover and cook for 30 minutes over medium-low heat. Add onion and garlic and cook for an additional 30 minutes. Add spinach, parsley and peppers. Mix well and cook for another 10 minutes. Add lemon juice just before serving. Mix in well and serve at once.

Hint: Serve with pita bread and a grain or vegetable dish for a simple meal. This soup is also good served cold, stuffed into pita bread.

RICE AND NOODLE PILAF

Servings: 6-8

1 cup whole wheat noodles
2 cups long grain brown rice
6 1/2 cups water, vegetable broth or garbanzo bean stock
1 tsp. cumin
1/2 tsp. oregano

Break the noodles up into very small pieces, about 1/8 inch long. (Put them in a towel or bag and crush with a rolling pin.) Place them in a saucepan along with the rice. Heat over medium heat, stirring constantly until they begin to smell toasted, about 3-4 minutes. Add the liquid and the seasonings. Mix well. Bring to a boil, cover, reduce heat to medium-low and cook until all water is absorbed, about 30-40 minutes.

Hint: In the Middle East, a pilaf or rice dish accompanies almost every meal. This type of dish is very often served at feasts.

YAKNIT EL BATINGANN (Eggplant and Garbanzo Stew)

Servings: 6

2 cups dried garbanzos
10 cups water
1 large eggplant, cut into 1 inch cubes
2 white potatoes, cut into 1 inch cubes
1 large onion, chopped
2 leeks, chopped
2-3 cloves garlic, crushed
2 cups garbanzo stock
1 15 oz. can stewed tomatoes
1/4 cup chopped fresh parsley
1/4 tsp. black pepper
1/4 cup tomato paste
1/4 cup lemon juice

Place garbanzos and water in a large pot. Bring to a boil, cover and cook over medium heat until beans are tender, about 4 hours. Remove from heat and drain, reserving stock for later use. Set aside.

Place eggplant on a non-stick baking tray. Place under broiler about 8 inches from heat and broil about 5 minutes. Watch them to make sure they don't burn. Set aside.

Place the potatoes, leeks, onion and garlic into a pot with the 2 cups of garbanzo stock. Bring to a boil, cover and cook over medium-low heat about 15 minutes. Add reserved eggplant and continue to cook another 5-10 minutes. Add cooked garbanzos, the tomatoes, parsley, pepper and tomato paste. Mix well. Cook for an additional 5 minutes. Add lemon juice. Mix in well and serve at once.

Hint: This recipe can easily be varied to suit your own tastes. Some suggestions are: Use 2 cups of any other dried bean in place of the garbanzo beans. Use broccoli in place of the eggplant. Do not broil the broccoli, just add it to the stew in place of the eggplant.

TABBOULEH (Parsley and Bulgur wheat salad)

Servings: 6-8

1 cup bulgur wheat
2 cups boiling water
6 green onions, chopped
3 tomatoes, chopped
1 cucumber, chopped
2 large bunches parsley, minced
3 large sprigs mint, minced
8 tblsp. fresh lemon juice
1/4 tsp. fresh ground pepper

Place the bulgur in a bowl and pour the boiling water over it. Mix. Cover and let stand for 1 hour. Drain and place in large bowl. Add the remaining ingredients and mix well. Cover and refrigerate at least 2 hours before serving.

Hint: 1 cup of cooked garbanzos is a nice addition to this salad.

MORE HELP

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