

In the past the common soldier was not fed by his unit, but was left to fend and forage for himself. When an army was in the area, the local population suffered greatly. Their homes were ransacked and anything of food value was stolen along with all edible livestock. Modern armies go to great lengths to insure their soldiers are supplied with sufficient nutritious meals to keep them fit and ready to complete their mission.

Military Field Rations. The object of military field rations is to provide plenty of nutrients in as light a weight as possible. When hot mess hall meals are not available, soldiers are issued field rations which can be quickly and easily prepared in the field. In training situations, most United States military units try to provide at least one hot meal per day and issue MRE's (Meals Ready to Eat) for the others. MRE's aren't much different in content from Vietnam War era C-Rations, but are packed in lightweight plastic and foil pouches instead of heavy tin cans and some foods like fruits and vegetables have been freeze dried to save even more weight. MRE's are balanced nutritionally and there is a certain variety of menus (so long as you don't get the same type for every meal), but are thought by many soldiers to be very bland. Troops often carry hot sauce and spices like seasoned salt, cayenne pepper, garlic or curry powder and some also bring cheese, dry salami, minute rice (a clean boot sock is good for carrying some extra rice) or ramen noodles to the field to improve or supplement the issued meal. MRE's generally consist of a main-course (like beef stew, barbecued beef slices or chicken a la king), a freeze dried fruit or vegetable snack (like peaches, strawberries or hash brown potatoes, which can be reconstituted with water or eaten dry and crunchy), dense crackers and some kind of spread (like peanut butter or cheese whiz), a dessert (like chocolate or cookies), a drink mix (like kool-aid or cocoa), salt, pepper, instant coffee, creamer, sugar, chewing gum, matches and toilet paper. Other modern armies issue similar rations, but usually with canned food. The French Army even includes a small plastic bottle of red wine in their field rations.

British Army Rations. After the fall of France to the Nazis, a booklet on guerrilla warfare was distributed to the British Home Army, their citizen's Militia, advising how to resist the expected invasion of their island nation. Concerning rations this booklet stated that, in a pinch, a half-pound of chocolate and a half-pound of raisins should suffice to sustain a soldier in the field for a week. Try that some time if you want to lose about ten pounds. The British Army today has a much better field diet in the form of a 24-hour "ratpack" (ration pack) thought by many other armies to be the best in the world. It's useful to examine the contents of the British ratpack when planning and assembling your own rations for Militia field duty. Each ratpack weighs about 4-1/2 pounds, comes in a cardboard box with a range card printed on the side and is issued with a folding stove and hexamine solid fuel tablets or a sterno type jellied fuel cooker. There is a menu card showing the

suggested breakdown for a breakfast, snack and main meal. The meal plan for the ratpack is not very different from the meals consumed by many backpackers; a quick, easy to prepare breakfast, high carbohydrate snacks eaten throughout the day's activities, and a more hearty main meal. Breakfast consists of a rolled oats porridge mix, a can of bacon grill or baconburger (which can be eaten cold or fried), brown biscuits (plain dense cookie/crackers not unlike hardtack with some sugar) and powdered cocoa. The snack is placed in uniform pockets or an equipment belt pouch (never in an ammo pouch; in a firefight, reaching for a magazine and coming up with a chocolate bar can get you seriously killed). The snack is consumed throughout the day as desired and as the mission allows. It consists of more brown biscuits, a small tin of meat spread (chicken, ham, beef, or chicken & bacon), a milk chocolate bar, a roll of hard flavored sugar candy, chocolate covered caramels and lemon or orange flavored dextrose (glucose) tablets. There are four different main meal menus, all in cans; chicken curry, steak & kidney pudding, steak & onion casserole and minced steak. The main meal also has fruit filled biscuits, instant soup, a side dish (mixed vegetable, pre-cooked minute rice, spaghetti in tomato sauce or beans in tomato sauce) and a fruit dessert (instant apple flakes, apple & apricot flakes, fruit salad or mixed fruit pudding). The 24-hour ratpack also contains six 25-gram sugar packets, four tea bags and several one-cup serving instant drink packets (four dried skim milk powder, two coffee, one beef stock and one orange or lemon drink powder) and sundries (chewing gum, toilet paper, salt, book matches, windproof & waterproof matches, water purification tablets and a P-38 type folding can opener). Where possible, fresh rations are issued to supplement the ratpack, but it provides a balanced diet of excellent quality and has enough calories and vitamins to keep a soldier going on all but the most arduous tasks.

Food for Energy. To perform your mission in combat, you need to give your body all the calories and nutrients it needs. To hump your rucksack up a mountain or keep warm on a cold day, your body needs to burn up lots of digestible food. Whether you are assaulting a hill or lying perfectly still in your sleeping bag, your body is constantly expending energy. The energy intake supplied by food is measured in units of heat energy called calories. A pound of cheese contains about 1,800 calories; a pound of margarine 3,300 calories. An individual performing the heavy exercise common to outdoor activities in a tactical environment requires 3,200 to 4,500 calories per day. In cold weather, more calories are required to keep the body warm. Rations for the average person should be planned to provide about 3,700 calories a day in the summer and 4,250 calories in the winter. Calories, however, measure only the heat energy in food. It would not be adequate, or appetizing, for a soldier in winter to consume the required 4,250 calories by eating a pound of margarine and half a pound of cheese. In order to put together a ration plan for Militia field duty which will encourage the body's efficiency, you must also consider the type of calorie you will be consuming.

Most of the calories you need in the field can be provided by carbohydrates, the starches and sugars which should make up about half of your daily ration. Pasta, flour, rice, potatoes, dried fruit, cocoa, pudding, dried milk, powdered eggs, nuts, honey and brown sugar are excellent sources of carbohydrates, and are the backbone of a good field ration. While some carbohydrates, such as pure sugars, assimilate into the body within fifteen minutes of ingestion, which is ideal for an instant pick-me-up on a patrol, others, such as the starch in pasta, take up to four hours to assimilate. That's fine; the extra time allows you to produce energy to warm you through the night or to fuel a long march. It should be noted that the nutritive quality of carbohydrates can be seriously affected by processing and refining. Whenever possible, include whole-grain and unprocessed foodstuffs in your rations.

Fats are a more concentrated form of energy and a more complex form of food than carbohydrates, so it usually takes the body from two to nine hours to metabolize them. One gram of fat produces nine calories of heat energy (more than twice as much as carbohydrates or proteins). While fats do not provide the instant vigor that carbohydrates can, they are a good long-term energy source to keep you hiking all day and warm all night. Fats will be providing energy to your body after carbohydrates eaten at the same time have been used up. Twenty-five percent of your daily caloric intake in the field should be fats. During the winter a higher intake, closer to forty percent, is recommended, since fats play such an important role in making your body less sensitive to the cold (now you know why blubber is such an important part of the traditional Alaskan Native American diet). However, fats require a good blood supply in the stomach for digestion. They are likely to be unappetizing, and even nauseating under circumstances when circulation is poor, like at high altitudes or when you are very cold, dehydrated and exhausted. If you don't have a problem digesting fats in cold weather and if you have a tendency to get cold in the middle of the night, put a spoonful of margarine in your cocoa before going to bed. Your sleeping bag doesn't warm you up, you warm it up and its insulation keeps your body heat from escaping. You can create body heat either by metabolizing food or by shivering; your choice. Other good sources of fats are cheese, coconut, bacon, salami, nuts and peanut butter.

Protein is the raw material which most of the body's cells require to keep on living. If more protein is consumed than the body needs for building and maintaining tissues, it is burned for energy. The protein in our bodies is made up of twenty-two chemical substances called amino acids. These amino acids can be arranged in a great number of formations, and each structure forms a different protein that serves the body in a different manner. All amino acids used by the body come from food. If some needed amino acids are not present in the diet, the body can break down other amino acids and manufacture the required type. However, there are eight amino acids which the body cannot manufacture called essential amino acids, which must be obtained through the protein

in the food we eat. Some foods, such as meats, poultry, fish, eggs and milk products furnish all eight essential amino acids and are called "complete proteins." Other foods, such as beans, peas, lentils, peanuts, cereals, vegetables and fruits contain some, but not all, of the eight essential amino acids and are called "incomplete proteins." Most of the complete protein foods are not very handy for use in the field because of weight or spoilage, so learning the proper combination of incomplete proteins is an important part of field nutrition. When considering how to combine incomplete proteins to create complete proteins, try to include foods from at least two of the following groups, either in a single meal or over the course of a day: whole grains (rice, flour, pasta), dairy products (milk, cheese), legumes (beans, peanuts, lentils), and seeds (sesame, sunflower, pumpkin). The most complimentary protein relationships are between milk products and grains; grains and legumes; and legumes and seeds. Tortillas with beans, rice with nuts, or the cornbread and beans diet of the Confederate soldier are all examples of combining incomplete proteins to create complete proteins. Even foods having complete proteins can be nutritionally enhanced through combination. If the protein in one food is relatively low in an essential amino acid, it can be combined with a food that is particularly high in that amino acid. In this way, essential amino acids present in the diet will be in closer proportion to the body's requirements for them, thus increasing the usability of the proteins you eat. Fish combined with rice, a diet which feeds much of the world's population, is an example of this process.

If your field rations contain a balanced variety of carbohydrates, proteins and fats, you will probably ingest an adequate supply of vitamins and minerals for a short bivouac. For an extended stay in the field you might consider supplementing your diet with vitamins, particularly vitamin C. If supplemental vitamins are a regular part of your diet at home, it is probably best to include them in your field rations.

Drinking an adequate amount of water aids in the digestion of foods, keeps cells healthy, regulates body temperature and helps carry wastes out of the body. Strenuous activity and high altitude usually increase the amount of water lost from the body through sweating. In cold weather, you can also lose about two quarts of liquid per day through respiration. Dehydration can make you susceptible to hypothermia, frostbite, mountain sickness, heat stroke and many other problems. In the summer you should drink a minimum of two or three quarts of water per day (strenuous activity in the desert sun can cause a fluid loss of close to one gallon per hour). In the winter a minimum of three or four quarts are essential. The easiest way to insure you replace enough fluids is to drink liquids at all meals and drink water whenever you are thirsty. Even if you are not thirsty, it is important to drink water at all rest stops throughout the day. When moving through areas where potable drinking water is in short supply, plan ahead and carry an

adequate amount with you. Keeping track of your urine output is a good way to make sure you are getting enough water. You should be urinating at least two or three times a day. The urine should be clear and light unless there is a specific reason for color change, such as taking vitamin B supplements, which can turn the urine a darker yellow. Many people have a tendency to drink their morning coffee and then hit the trail. Keep in mind that coffee and tea are diuretics and can cause dehydration. Before you move out, drink a full cup of water after your coffee to get off to a good start.

Good nutrition is the first criterion for selecting rations for a stay in the field. A nutritionally balanced diet will begin with whole grains, dairy products, legumes and seeds. It should also include some meats or meat substitutes, fruits and vegetables, and sweets. The chart in the next column provides a guideline for a nutritionally balanced summer ration (increase fats to 40 percent in winter):

Percentage (by weight; not including non-nutritive food items such as coffee, tea, salt and spices) of total rations in each major food group:

Meat or meat substitutes 11%

Dried meats, eggs, soy products (3%)

Nuts, seeds, legumes (8%)

Dairy products 18%

Powdered milk and milk drinks (10%)

Cheese (8%)

Fruit and vegetables 13%

Dried vegetable, potatoes (7%)

Dried fruit (6%)

Grains and grain products 33%

Flour, biscuit mix, cake mix (11%)

Cereals, wheat germ, granola (11%)

Pasta, rice, barley, etc. (11%)

Margarine and oils 8%

Sweets 17%

Sugar and honey (8%)

Fruit drinks, Jell-O, puddings (9%)

Field Ration Planning. The Militia training manual "Citizen Soldier" by Robert Bradley recommends a five-day field ration of three one-quart Nalgene plastic bottles (one each of minute rice, macaroni and instant mashed potatoes), a small bottle of salt, some spices, a medium bottle of Tang and a plastic bottle of squeeze margarine, supplemented with some vitamins, canned tuna, candy bars, instant cocoa, coffee or tea. This plan is certainly better than the half-pound each of chocolate and raisins recommended to the British Home Army during World War II, but you can do better with the food selection techniques used in modern lightweight backpacking which are described in the next section.