

NUTRITION ESSENTIALS IN ROMAN MILITARY HOSPITALS: 27 BCE-476 CE**Dr. Valentine Belfiglio***

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INTRODUCTION

One area of Roman military history which has not received sufficient attention is the outstanding nutritious protocol of Roman military hospitals (valetudinarii). Malnutrition and dehydration were two of the many dangers faced by soldiers entering hostile, or potentially hostile territory. A 160-pound marching requires 3,402 calories and 70 grams of protein a day. The field ration for legionnaires consisted mostly of grain-wheat, barley, millet-ground into flour to make bread, biscuits, and porridge. In cases where water and food were in short supply, the fighting effectiveness of soldiers could seriously diminish. Heat exhaustion and heatstroke were additional hazards. Removing moisture from meat by drying it or curing it with salt could preserve it for a short time. While traveling through friendly territory, garrisons could pick wild fruits, vegetables, and nuts. They could also hunt game or fish.^[1]

By comparison, Roman general hospitals contained all required nutritious foods. Convalescence is the period of recovery after the termination of a disease, severe injury, or an operation. Convalescent diet is a diet suitable for the condition from which a patient is recovering.^[2] Every Roman military fort (castella) had a general hospital (valetudinarius) capable of short term and long-term care. Roman camps (castrae) only had medical infirmaries (medicinae infirmariae) capable of short-term emergency care. Capsarii (medical corpsmen) transported soldiers in need of complex surgery or long-term care, by closed wagons pulled by horses, to the closest general hospital.^[3] The average valetudinarius occupied 6,000 square feet,^[4] and could accommodate between 250 and 500 patients. In the event of mass casualties, ward tents could be set up near the hospital. Hospital personnel placed sick soldiers in separate wards from wounded and post-operative soldiers. Ancient physicians knew nothing about microbiology; However, they were aware that diseases could spread throughout a group.^[5]

Convalescent wards had several specialists to help wounded or sick legionnaires recover. The resident medicus (physician) or medici (physicians) oversaw all medical matters during the recovery process. An optio convalescentium (superintendent of convalescence) and a staff of miles medici (medical orderlies) brought patients their meals and prescribed medicines, supervised their rest and exercise programs, as well as bathing, hydrotherapy, and changes of bedding. A hospital seplasiarius (pharmacist) prepared medical ointments and mixtures. The marsus prepared antidotes and treatments in

cases of snakebite or scorpion-stings. There was also a group of medical specialists for eye care (medicus oclarius), surgery (medicus medicus chirurgus), animal care and meat inspection (veterinarius) and others.^[6] This article focuses on nutrition essentials for wounded or sick military personnel. Vegetius points out that military officials selected only the healthiest young men for service in the Roman military. He specifically mentions those of "strength of minds and bodies."^[7] Young, healthy men have a better chance of recuperation from wounds and disease than those that are older and frail.

SCOPE AND METHOD

The thesis of this paper is that the nutritious general and specialized diets used in ancient, Roman military hospitals led to an earlier recovery of sick and wounded soldiers than the soldiers of the enemies of Rome who had no military hospitals that served nutritious diets. The methodology employs historiography and conceptual analysis of the writings of ancient and modern physicians and historians. The results demonstrate that hospital physicians considered nutritional adequacy to be an important issue in the recovery of convalescent patients. The conclusion and implications are that nutritious foods for healthy and convalescing soldiers in antiquity and today acts as a force multiplier. A force multiplier is a capability that, when added to and employed by a combat force during any historical period, significantly increases the combat potential of that force and thus enhances the probability of successful mission accomplishments.

Primary Sources

Aulus Cornelius Celsus (first century CE) wrote, classified food into three categories the strongest, which contains the most nourishment, the intermediate, and the third, which is the most digestible. Pedanius Dioscorides (40–80 CE) (2005) compiled an extensive list of drugs and other materials used in medicine. Claudius Galen (2011) developed a systematic approach to the retention enema to provide nourishment, and Paulus Aegineta (1846) wrote a medical encyclopedia, in seven Books. Flavius Rhenanus Vegetius (Fourth century CE) (1993) wrote a chapter on desirable physical condition and mental acuity for entry into the Roman legions. Quintus Martialis 1893. (3rd century) specialized in dietetics. His work emphasizes the role of nutrition in the treatment of disease.

Roman Nutrition

The diet of Roman soldiers consisted of what was available from supply wagons and local sources. The army did not have the benefit of nutritional science. Still, experienced commanders knew which foods would tend to make legionnaires healthy and effective. The daily diet could consist of wheat and other grains, meats, fish, cheese, fruits, nuts, and vegetables. They consumed wheat in bread, soups, stews, and pasta. Meat obtained from cattle, swine, sheep, deer, hares, or other mammals could be boiled or roasted. Chicken, wild birds and their eggs sometimes supplemented the menu. The cooks used salt to preserve meat for a short while. They also made cheeses from cows, sheep, and goats. Meat from animals can be a source for hormones, vitamins, and nutritional aids.^[8] Local lakes, rivers or coastal areas produced fish of varying kinds. Legionnaires drank water or wine mixed with water while on campaign. Cooks could add various spices and sauces if time allowed.^[9] During periods of relative peace the legion commander and his highest-ranking officers could choose from a variety of gourmet dishes, such as Ragout Apicus with Fishes and Meats or Fish Cooked with Raisins and Wine. The Romans often used garum, a fermented fish sauce, as a condiment. They consumed dinner within the Praetorium (the commander's tent) Sometimes they drank wine with honey.^[10] Legionnaires on patrol, foraging expeditions, and couriers could face unusual time-consuming situations which led to insufficient food in their packs to complete a mission. Therefore, they would often establish a basecamp. Theodorus Priscianus and Patrick Faas prepared lists of edible foods available in different locations. Water should be obtained from springs. Priscianus recommended boiling water and then cool prior to drinking it. Several wild plants and wildlife could be eaten. If the camp was near water, fishing was an option. Meat could be preserved for one day by wrappings it thoroughly in a cloth previously immersed in water. The wrapped meat was then suspended in air by tying it to the branch of a tree by a long rope to allow it to sway with the evening breeze. Meat must be thoroughly boiled or roasted prior to eating it.^[11]

Seriously ill or injured soldiers in hospitals received light, digestible foods. Examples are water, chicken broth, egg whites, milk with lukewarm honey, gruel, and fruit juices.^[12] Soldiers suffering from serious injuries to the intestinal tract, or otherwise, unable to take food and water by mouth could receive water and food through the rectal tissue. After an enema and cleansing of the area, the legionnaire received water, eggs, beef and chicken broth, milk, and honey through rectal alimentation. The patient laid on his left side with his right knee flexed. The nutrient mixture was always in liquid form. The medicus inserted a six-inch tube into the rectum and 100–240 ml. of fluid allowed to flow very slowly and stopped at intervals to aid retention. The tube was withdrawn, and the buttocks compressed together to avoid evacuation. The patient was encouraged to retain the fluid for 30 minutes.^[13]

Medici placed soldiers on nutrient enemas who survived and could receive oral nutrition on the nutrient diet. As their condition improved, Celsus changed their food intake to the intermediate diet. Foods in this category included: vegetables, rabbit, birds, apples, figs, pomegranates, radishes, peas, beets leek, stewed pork, tender fish, soft boiled eggs.^[14] With further improvement, legionnaires received a normal diet and returned to duty. The optio convalescentium and his staff were in an excellent position to report signs of malnutrition to the presiding medicus. They looked for signs of loss of appetite, weight loss, constipation, and diarrhea among the hospital patients. They could advance the diet as quickly as possible, as appropriate. The medicus might advise starch-based foods, like gruels, as a first line treatment in minor self-limiting cases of diarrhea. He could prescribe Greater Burnet (*Sangisorba officinalis*) for more persistent cases.^[15] Physicians prescribed Linseed (*Linum usitatissimum*) for constipation.^[16] The Seplasiarius used rainwater in the preparation of all liquid medicines. If rainwater was not available, then they used spring water.^[17]

Special Diets

Legionnaires suffering from wounds or injuries to the upper gastrointestinal tract required special attention. For those with anorexia, the optio convalescentium attempted to serve food attractive and seasoned according to the individual tastes of the soldiers. He also scheduled procedures and medications when they were least likely to interfere with meals, and provided for small, frequent meals. Herbal medicines could minimize pain, nausea, or depression. Sometimes, he withheld beverages for 30 minutes before and after meals to avoid displacing the intake of more nutrient-dense foods. Legionnaires suffering from nausea and vomiting were given bland foods such as plain bread and gruel made from oats. Ginger (*Zingiber officinale*) was used as a carminative and anti-emetic.^[18] Patients suffering from uncontrolled vomiting would receive nourishment through a retention enema. If allergies were a problem, the medicus and hospital staff would do their best to identify the allergic

substance, often without success. They would douse the affected areas, if possible, with a cooled decoction of basil, mixed with milk. They would also administer mint tea to those affected.^[19] Basil has an anti-allergic compound called caffeic acid, and mint's essential oils contain anti-inflammatory and anti-bacterial constituents. Patients suffering from allergies would receive bland diets.

One of the most serious problems affecting legionnaires was blood loss, caused by wounds in battle, post-surgical patients, or other causes. In an age without blood transfusions, medici depended on food sources to help soldiers regain their strength. Medici used pressure to the wound or even a tourniquet to stop the bleeding. Powdered Acacia or tragacanth could also serve as a coagulum.^[20] They acquired this list of foods through recorded experiences. It included meat from boar, calf, deer, skinless chicken, and pork.^[21] Pumpkin seeds is a plant product containing iron prescribed by Roman physicians.^[22] Infections were also a serious problem. The convalescent staff treated fever in several ways. They gave patients a draft containing a powder made from the bark of a Willow tree (*Salix*). The bark contains salicin which acts as an anti-febrile and reduces mild to moderate pain.^[23] When the fever was quite high, hospital staff kept the head of the patient cool with cold compresses and the body warm with blankets. They used verdigris (cupric acetate) as a topical, anti-inflammatory agent, and horehound (*Marrubium vulgare*) in red wine as an antitussive.^[24] Hospital staff encouraged patients with fever or diarrhea to drink plenty of water. They also gave the patient a cooled decoction of ginger tea mixed with a little honey to help break a high fever.^[25] If a hospital patient developed influenza, the medici treated it in the same manner as fever. They also added coltsfoot (*Tussilago farfara*) to the medicinal regimen. Coltsfoot has flavonoids which possess anti-inflammatory and antispasmodic actions.^[26] While the temperature was high the patient's diet included plenty of water, juices, broths, honey, and thyme tea.^[27] Honey acts as a natural expectorant and thyme has expectorant and antiseptic qualities. Soldiers in the field faced many dangers. There were attacks by enemies, bites and stings from snakes, scorpions and other creatures, epidemics, and other diseases and maladies. Treatments varied, but the hospital usually followed the guidelines of Celsus in nutrition for most of them.^[28]

Galen made several recommendations for the menus of patients in a hospital setting, dependent on their health status. He believed that the foods should be nutritious, easily digested and restorative. He selected the meat of birds, including chickens, partridges, and sparrows to be best. Well cooked pork from freshly killed swine would be good for some patients. Rock fish or cod in a white broth was favorable. He insisted that wheat bread must be pure, carefully baked or roasted, and have sufficient leaven and salt. Barley groats, gruel, eggs and nutritious fruits and vegetables were also on the list. He

specifically mentions pomegranates, pears, apples, quinces, myrtle berries, mallows, cabbage, lettuce, and beets. The patient should receive two meals a day.^[29]

Legionnaires on patrol, foraging expeditions, and couriers could face unusual time-consuming situations which led to insufficient food in their packs to complete a mission. Therefore, they would often establish a basecamp. Theodorus Priscianus and Patrick Faas prepared lists of edible foods available in different locations. Water should be obtained from springs. Priscianus recommended boiling water and then cool prior to drinking it. Several wild plants and wildlife could be eaten. If the camp was near water, fishing was an option. Meat could be preserved for one day by wrappings it thoroughly in a cloth previously immersed in water. The wrapped meat was then suspended in air by tying it to the branch of a tree by a long rope to allow it to sway with the evening breeze. Meat must be thoroughly boiled or roasted prior to eating it.^[30]

CONCLUSION

Frederick the Great (1712-1786) pointed out: "It is necessary to procure nourishment for the soldier wherever you assemble him and wherever you wish to conduct him."^[31] This is especially true for soldiers convalescing in hospitals. The nutritious general and specialized diets used in ancient, Roman military hospitals led to an earlier recovery of sick and wounded soldiers than the soldiers of the enemies of Rome who had no military hospitals that served nutritious diets. The conclusion and implications are that nutritious foods for healthy and convalescing soldiers in antiquity acted as a force multiplier to return infirmed soldiers back to the battlefield as quickly as possible. This principle is as true today as it was in ancient, Roman times.

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