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# CRITICAL PATIENTS: NUTRITIONAL MANAGEMENT IN CATS AND DOGS

**Adrian Maximilian MACRI, Andrei SZAKACS, Andreea PĂȚĂRĂU, Sorana DAINA**

University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, 3-5  
Calea Mănăștur street., 400372, Cluj-Napoca, Romania  
adimacri@yahoo.com

## **Abstract**

*Among the first symptoms the pet's owner observes when the animal is sick is the lack of appetite. Although this lack of food appetite isn't usually the cause of the illness it would have a delay effect of the healings. One of the usual point of view of the hospitalized dogs and cats lies in the delay of nutrition till the appetite or wish to be fed comes back. Still it is very well underlined the fact that the early nutritional management for the dogs and cats being in a critical state reduces the mortality, improves the answer to stress and trauma and brings upon healing. The lack of an adequate nutritional support of the hospitalized patients can lead to high infectious risk, delayed healing, muscular weakness and high mortality. To reach this goal it is recommended the supply of the patient with a caloric support and balanced proteic diet. The study has been done on 10 patients, 8 dogs and 2 cats from different breed. Clinical exams of the animals have been done, X-rays, Ultrasounds, biochemical and hematological analysis in order to achieve a correct diagnose of the illnesses of the patients and to establish an adequate treatment for them. From the accomplished research and the obtained results we conclude that nutrition within the patients in critic state improves the general health state of the patient, so that it must be imposed along with the drug treatment as well as to other treatment modalities the moment the patient is brought to the vet.*

**Keywords:** cat, critical conditio, dog, management, nutrition

## **Introduction**

Enteral nutrition should be the first choice for nutritional conduct if the patient's condition allows us. This method is considered more physiological than the parenteral nutrition. The enteral feeding maintains the integrity of the gastrointestinal system and prevents translocation of the microbial flora (Pibot et al., 2006).

Patients of all ages may become malnourished due to inadequate nutrition. Malnutrition may occur in hospitalized patients because of the low amount of food they eat.

The major consequences of malnutrition, especially in sick patients, are: decrease in immunological competence, decrease in tissue synthesis and metabolic regeneration and modification. It is acknowledged that there is a close link between nutrition and immunity. Malnutrition patients are susceptible to infections. Patients with sepsis are most likely anorexic, this leading to malnutrition. Studies show that protein deficiencies limit amino acid and nucleotide substrates for cells proliferation and result in a reduced number of circulating T lymphocytes (DiBartola, 2015). Malnutrition decreases both the immune function of existing cells by complement reduced secretions and the macrophages function, making it less efficient and lowering Killer cells activity (Fascetti et al., 2012).

There are three parameters that must be monitored to ensure that nutritional support is adequate. A decrease in body weight of more than five or ten percent, which is not caused by dehydration, signals the need for immediate nutritional support. Hypo-albuminuria due to decreased production is a clear indicator that it should be intervened with a nutritional support. The patient can be examined by means of the physical condition assessment system, which is composed of 5 criteria: The first criterion indicates a very weak patient (<5% body fat) whose fat is not palpable, the spine is visible and has muscular atrophy. The second criterion indicates an underweight patient (5-15% body fat) whose ribs and bones are slightly palpable covered by a thin

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layer of fat. The third criterion evaluates the ideal physical condition (16-25% body fat) with a good balance between the weak mass and the adipose tissue. The fourth criterion shows an overweight patient (26-35% body fat), whose ribs and bones are difficult to palpate and are covered by a moderate fat layer. The fifth criterion shows an obese patient (> 35% body fat), whose bones and ribs are difficult to palpate due to the thick layer of fat. A body state score of less than 2 requires the introduction of the nutritional support. A weight loss of more than 10%, starvation that lasts more than 3 days, and hypo-albuminuria are the assessment criteria for the nutritional status of patients (Pibot et al., 2006).

### **Materials and methods**

The study was conducted during 2017-2018 at the Faculty of Veterinary Medicine Cluj-Napoca. It has been followed how the nutrition influences the healing of patients in critical condition. The nutritional stabilization of dogs or cats in critical condition and the treatment of sub adjacent disease in a timely manner have a crucial importance in the healing process, which is the reason we have chosen this theme. The research was conducted on 10 animals, including 8 dogs and 2 cats of different breeds.

A clinical examination of the animals, radiographs, ultrasounds, biochemical and hematological examinations were performed to properly diagnose the diseases that patients suffered from and to establish appropriate treatment for them.

For monitoring the nutritional status, the following parameters were observed: phosphorus, sodium, potassium, calcium, total protein, albumin, glucose and body weight.

The food used to support the body in pathological conditions and in nutritional recovery from convalescence is a lightly digestible food with high energy content and a high concentration of essential nutrients. The diet contains high levels of high quality protein to help recover, restore and maintain proper body weight. It helps heal wounds and support the immune system through increased levels of zinc and arginine. It has added omega-3 fatty acids that help reduce inflammation. This feed is liquid, easy to administer, both in the well-fed and in patients fed with syringe or spontaneously. It is composed of milk and derivatives, cereals, oils and fats, extracts of vegetable proteins, minerals. Milk is low in lactose, caseinated, concentrated.

### **Results and discussions**

Parameters monitored in this study were improved, within 7 days from the starting of the nutritional treatment.

Glycaemia initially had elevated values in 7 patients, as a response to stress and anorexia. During the study, it reached normal values in all patients.

Sodium was in 3 patients in a low amount, and in 3 patients increased due to dehydration. Following therapy, all patients corrected the values of this parameter, reaching to normal values. In 7 patients out of 10, potassium levels were normal, in 2 patients there were elevated values due to renal insufficiency and in 1 patient low values due to digestive loss. At the end of the study, potassium had normal values in all patients.

Both total proteins and albumin had low values due to malnutrition and losses from nephritic syndrome or digestive symptoms. Because both total protein and albumin have a plasmatic half-life of 1 to 8 weeks with moderate duration, their values had not increase significantly, but an improvement in their values was observed.

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1 patient out of 10 had elevated phosphorus due to nephrotic syndrome. In the rest of the patients, the phosphorus values were normal. Following therapy, phosphorus values in the patient with nephrotic syndrome decreased to normal.

Low calcium levels were improved following nutritional treatment within 7 days. Body weight was maintained in all patients. In 4 patients, a slight increase in weight was observed.

The study made by Mohr J. Albert in 2013 proved that patients who received early onset nutritional support had a faster clinical improvement than those who had been deprived of food.

### **Conclusions**

Following the results of the study, we concluded that enteral nutrition has the potential to reduce the time of hospitalization, reduces catabolism and improves the function of the intestinal barrier. Adequate nutritional support improves resistance to infection, speeds up healing and counteracts protein catabolism, resulting in increased muscle weakness and increased mortality.

Nutritional support is recommended in patients with prolonged anorexia, weight loss and hypo-albuminuria. The choice of administration way and diet for nutritional support should be based on patient's tolerance and prevention of adverse side effects. The administration rate of the nutritional support should provide the patient with a resting energy without increasing the likelihood of intolerance to the received food volume or metabolic complications.

Medium and long-term nutrition has shown a generally positive result in all the cases investigated. Thus, the correct nutrition obtained following investigations should be imposed alongside the medical treatment and other treatments, from the patient's presentation to the veterinarian.

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