

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF THREE-DAY FOOD RESTRICTION IN
RATS**

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ABSTRACT

Malnutrition is a common problem in the hospital setting. Once in the hospital, many patients lose weight due to factors such as poor appetite, concurrent illness, inadequate intake due to specific feeding difficulties and some are being kept 'nil by mouth' for investigations. It has been shown that deterioration can be prevented with proper monitoring. Malnutrition is still poorly recognized in hospital and has serious consequences, both for the individual patient and the consumption of medical resources. This study aimed to evaluate the food restriction effects on rats for three days. Eight rats were divided into 2 groups, food restriction group and control group. The food restriction group was not given food for 72 hours. Blood from the rats were withdrawn at time 0 from the tail and after 72 hours by cardiac puncture. Hematocrit level, hemoglobin concentration, total red blood cell, mean cell hemoglobin, mean cell volume and mean corpuscular hemoglobin concentration were analyzed. Other parameters such as blood glucose, blood protein and body weight were also observed. Result showed that there was an increase in total red blood cell, hemoglobin, and hematocrit level in food restriction group and the difference was significant. There was also an increase in the MCV, MCH, MCHC level but the changes were not significant. On the other hand, there was a decreased in total white blood cell, body weight, and blood glucose level in food restriction group and the difference was significant. There was also a decrease in plasma protein but the difference was not significant. All these observations showed that short term starvation produced important changes in body compositions and metabolisms. These findings are important in understanding the processes associated with starvation.

CHAPTER I

INTRODUCTION

Starvation refers to the total lack of intake of energy and essential nutrients needed for the maintenance of life. Starvation is the most severe form of malnutrition. It may result from fasting, famine, anorexia nervosa, catastrophic disease of the GI tract, stroke or coma. The basic metabolic response to starvation is conservation of energy and body tissues. However, the body will metabolize its own tissues as a source of energy, which results in the destruction of visceral organs and muscle and in extreme shrinkage of adipose tissue.

Starvation has often been described as producing a series of changes, such as a progressive decrease in the proportion of endogenous energy derived from protein mobilization and an increase in the proportion derived from fat and ketone bodies. However, many of the metabolic changes are influenced by the age, sex and the initial body composition of the individual. Furthermore, protein oxidation and resting energy expenditure may temporarily increase before they begin to decrease, and the contribution of protein oxidation to total energy expenditure in lean individuals undergoing prolonged starvation may actually increase. (Payne-James *et al*, 2001)