

Thesis Title Protein requirements of training Thai soldiers.

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ABSTRACT

This study was designed to determine the level of protein intake necessary to maintain nitrogen balance in Thai soldiers under the conditions of arm training and physical exercise about 4-6 hours a day. Ten lance corporal students were participated in 63-day study period. Three experimental periods of a one-day protein free diet, a four-day adaptation period, a six-day collection period and a three-day break. Three different daily cycle menu, based on local diets were offered. Energy intake was adapted to individual requirements and constant throughout the period of study for each individual. The nitrogen content of the diet, urine and feces was measured by the Kjeldahl method. Energy in food was measured by bomb calorimeter. Body weight was recorded daily. Haemoglobin, Haematocrit, Total protein, Albumin,

BUN, SGOT, SGPT were determined at the beginning of each dietary period.

" True " N-balance was calculated assuming miscellaneous nitrogen losses of 24 mg/kg/day. All subjects were in negative nitrogen balance at level of protein intake 1.0 g/kg/day and positive at the levels 1.5 and 2.0 g/kg/day. The individual regression equations of nitrogen balance were calculated and mean intercept at zero balance was 222.2 ± 21.1 mg N/kg/day or equivalent to 1.39 ± 0.13 g protein/kg/day. If 97.5 percent of population is expected to be covered, the safe level of protein intake would be mean \pm SD or equivalent to 264.38 mg N/kg/day or 1.65 g protein/kg/day, whereas based on the confidence band method (pooled data) the recommended protein intake would be 1.69 g/kg/day.

From this study, the safe level of protein intake for training Thai soldier is clearly higher than the 0.99 g protein/kg/day required by the normal Thai adults. The increased in protein intake during heavy physical training is needed for tissue building and repair and also for sweat lost. This result could also apply to the dietary protein intake for athlete and hard worker adults.