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1415. Nitrogen metabolism at various levels of nitrogen intake during caloric restriction.

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Male albino rats were standardized on either a commercial stock diet or an 18% casein-purified diet. Body weight was maintained at 300 gm by feeding 46 calories. After 10 days on the standardizing regimen plasma proteins and liver composition were determined. During the next 4 days a high fat-egg albumin diet was fed to supply half the caloric requirement and levels of nitrogen ranging from zero to 160 mg. Fasted and full-fed controls were also employed. Body weight losses were independent of the level of nitrogen fed during caloric restriction, but were 11% in animals pre-fed the commercial diet and only 7% in those previously fed the purified diet. As the level of dietary nitrogen was increased the degree of negative nitrogen balance was reduced. However, in no case was nitrogen balance attained when calories were restricted, since maximum nitrogen utilization was 60% at the lowest level of intake and only 55% at the level which maintained nitrogen balance when the calorie requirement was met. Losses of liver nitrogen were not influenced by variation in dietary nitrogen in animals pre-fed a commercial diet, approximating 20% of total liver nitrogen. In animals pre-fed a casein-purified diet, however, liver nitrogen losses were inversely proportional to the amount fed. The significance of these findings in the normal animal and those obtained with protein-depleted animals will be discussed.