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The protein requirements of individuals engaged in resistance exercise has been debated for decades, and a curious new trend in the fitness industry is the seemingly counterintuitive notion of low-protein diets. Nitrogen balance studies are a common and accepted means of assessing protein status.

The objective of this study was to statistically analyze previously published nitrogen balance studies to find the model that best describes the relationship between protein intake and nitrogen retention, as well as to elucidate significant variable(s) affecting nitrogen retention.

Nine studies yielding a total of 17 subgroups, which had been allotted various quantities of protein during a resistance training program, were analyzed using Statistica Computer Software. Nitrogen retention was tested for correlations against 10 independent variables using multiple models. The level of significance was set at a value of $p \leq .05$. A linear regression model revealed the highest correlation ($r = .698$) between nitrogen intake per kg body weight per day and nitrogen balance per kg body weight per day. This relationship was highly significant ($p \leq .006$). Zero balance was calculated to occur at a protein intake of 1.35 g/kg/day, and net protein utilization, equal to the slope, was found to be 27.0%.

The results suggest that weight-trained persons require greater protein intake simply to maintain muscle mass. Further increases in protein ingestion lead to a more positive nitrogen balance, suggestive of muscle accretion. These data do not support the concept of a low-protein diet for persons engaged in resistance training.