other geriatric strategies,35 might be implemented. Frail persons living in long term care facilities are often undernourished, hence protein supplementation as a regular practice seems to be indicated, but a single correction is probably not sufficient to impact general health, quality of life, or survival. Cost-effectiveness analysis issues may arise if protein supplements for frail persons would be universally implemented on a regular basis. Assessment of renal function, frequently compromised in frail older persons, is needed before a higher protein diet as part of a multi-intervention approach is initiated and in the course of the intervention, as well as a comprehensive geriatric assessment to help in the decision whether such intervention is most likely beneficial on an individual basis.

References


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Perspective: Exercise and Protein Supplementation in Frail Elders

To the Editor:
In the October 2012 issue of this journal, Michael Tieland and colleagues,1,2 present two studies exploring longer duration protein supplementation in older adults. It is easy to be enthusiastic about these studies. The choice of study population (frail elders) is compelling, and the interventions (protein supplementation and exercise) are clinically and intuitively desirable. Dietary protein intake and physical activity are the key modifiable means of stimulating muscle protein anabolism.3–5 However, one of the lingering problems facing muscle metabolism researchers is the tenuous link between highly controlled, acute, mechanistic studies and longer duration, outcome-focused trials.6–8 In their articles, Tieland et al12 clearly demonstrate that making the translational leap from a successful acute, mechanistic result to longer term improvement in outcomes such as muscle mass and function is possible but should not be an automatic expectation.

The two articles presented in the October issue use a traditional “protein supplementation/exercise training” experimental design: Expose volunteers to a resistance exercise or protein supplementation regimen, or both, for 24 weeks and closely monitor outcomes.1,2 However, instead of being formulaic, the authors have incorporated several novel design elements in their work. Notably, the investigators specifically target breakfast and lunch, two traditionally lower protein meals, as the times to provide protein supplementation. This represents a more thoughtful, meal-driven approach to protein supplementation, which aims to optimize muscle anabolism by delivering a moderate amount of high-quality protein at each meal, rather than dumping the bulk of the day’s protein in a single meal.9,10
From a practical perspective, these articles raise a few broader study design questions. It is perhaps a question or comment to be directed at future nutrition-focused studies, but is it necessarily appropriate to apply a conceptual model that hypothesizes “improvement” in an experimental group versus “no change” in a control condition? Clearly, increasing lean tissue mass and improving muscle function is highly desirable, but is this a realistic expectation for a protein-alone intervention, where “maintenance” may not be such a bad outcome?

A second question relates to the study population targeted in these studies. The inclusion of “frail elderly” in the titles certainly lends a great deal of potential clinical relevance to these articles. But would nutrition and exercise interventions work similarly, or perhaps better, in a population that was more overtly frail, malnourished, or at greater risk for accelerated muscle loss? The volunteers in Tieland’s studies, although clearly an at-risk population, were still doing quite well. Initial body mass index and lean body mass values were reasonable, and the volunteers’ habitual, nonsupplemented protein intake was commendable 1.0 g protein/kg body weight and well distributed across the day. Nevertheless, the fact that improvements in physical function and muscle mass may be realized in this population is encouraging and provides further evidence of the benefits of modest, targeted protein supplementation.

References


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