

## Amsterdam University of Applied Sciences

### Impact of dietary protein supplementation on length of hospital stay and mortality in older adults

*a systematic review*

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# IMPACT OF DIETARY PROTEIN SUPPLEMENTATION ON LENGTH OF HOSPITAL STAY AND MORTALITY IN OLDER ADULTS: A SYSTEMATIC REVIEW

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## Background

Optimal protein intake may reduce length of hospital stay (LOS) and mortality in hospitalized older adults. The objective of this systematic review is to assess the impact of dietary protein on length of hospital stay and mortality in hospitalized patients.

## Methods

A Medline search was performed for studies published between 1946 and June 2017. The review was performed following the guide for conducting systematic literature reviews from the Nordic Nutrition Recommendations. Studies about hospitalized older adults with an evident/registered total protein intake, related to the length of hospital stay and mortality were included. Two reviewers (JV and CvD) independently selected relevant articles based on title and abstract. Screening of the abstracts was done according to predefined criteria. Full text articles suggested by at least one reviewer were included for quality assessment. The quality of the studies were graded as A (highest), B, or C, using the quality rating system of the Agency for Healthcare Research and Quality (AHRQ).

## Results

Out of 5061 studies, 6 studies were included (older adults n=488). Of those, 5 were randomized clinical trials (RCTs) and 1 was a prospective cohort study. One study showed a positive effect of protein supplementation on LOS, the remaining five studies showed no significant effect. Three studies investigated the impact of dietary protein on mortality but found no effect. The studies used different procedures of protein supplementation: hospital diet, oral nutritional supplements, amino acid (AA) supplementation and AA infusion. The quality of the studies varied from low to high (Table 1).

## Conclusion

Based on this systematic review it is unclear whether an increase in dietary protein reduces length of hospital stay or mortality in hospitalized older adults. Certainly, more research is needed as the number of high quality studies were limited, contrast in protein intake between the groups was small and the heterogeneity among those studies was high.

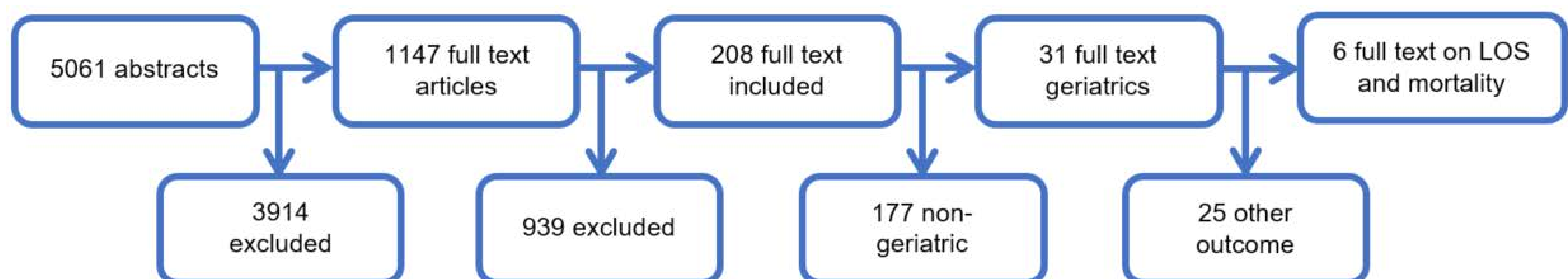


Table 1. Effect of protein intake in g/kg bodyweight/day on length of stay and mortality in hospitalized older adults

Author (year)	Study design	Quality Rating	Protein intake intervention (n)	Protein intake control (n)	Length of Stay	Mortality
Aguilar-Nascimento (2011)	RCT	B	1.2 (11)	1.2 (16)	-	-
Botella-Carretero (2008)	RCT	B	1.07 (60)	0.79 (30)	-	-
Gazzotti (2003)	RCT	B	1.12 (35)	0.57 (35)	-	NA
Nishizaki (2015)	RCT	C	1.0 (13)	0.97 (10)	-	NA
Umenai (2006)	RCT	A	1.36 (94)	0 (84)	+	NA
Venrooij (2009)	Prospective Cohort Study	A	NA	NA	-	-

+ = Statistically significant relation protein intake

- = no significant relation protein intake

NA = Not Applicable

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