

# Nutritional trials using high protein strategies and long duration of support show strongest clinical effects on mortality.

## Results of an updated systematic review and meta-analysis

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### Background

Disease-related malnutrition (DRM) is a serious problem affecting 20 to 50% of hospitalized medical patients. DRM negatively affects clinical outcomes and is associated with increased mortality and cost of care. The use of nutritional support has been shown to improve clinical outcomes, but there is no consensus regarding optimal nutritional strategies for these patients.

### Objective

This meta-analysis of 29 randomized, controlled trials aimed to investigate associations between study characteristics (e.g., type of intervention [dietitian-based or ONS only], clinical setting, duration, amount of protein & energy) and clinical outcomes in non-critically ill, medical inpatients with or at risk for malnutrition.

### Methods

A literature search on MEDLINE and Embase was performed. All types of nutritional support interventions were eligible, except parenteral nutrition. Control groups received usual care (no systematic use of nutritional support) or placebo.

### Results

#### **Nutritional Support Reduces Mortality**

The mortality rate was reduced by nearly 30% in those receiving nutritional support vs. control (8.5% vs. 11.3%, odds ratio [OR] of 0.72 [95%CI 0.57 to 0.91,  $p=0.006$ ]).

#### **Benefit of Longer Duration Interventions**

There was a stronger effect of nutrition interventions on reducing mortality in trials lasting >60 days (OR 0.53 [95% CI 0.38 to 0.75]) compared with trials of shorter duration (OR 0.85 [95%CI 0.64 to 1.13],  $p=0.04$ ).

The complete study may be accessed at: <https://pubmed.ncbi.nlm.nih.gov/34620354/>

#### **Benefit of Higher Protein Interventions**

High-protein interventions (ONS  $\geq 20\%$  of kcal from protein or individualized protein goals) had a stronger effect on reducing mortality risk compared to low protein interventions (OR 0.57 [95%CI 0.44 to 0.74] vs. 0.93 [95%CI 0.73 to 1.19],  $p=0.007$  for subgroup differences).

#### **Nutritional Support Reduces Length of Stay (LOS)**

There was a significant reduction in LOS for patients receiving nutritional support vs. control, decreasing from 12.0 days to 11.4 days with a mean difference of -0.61 days (95%CI -1.15 to -0.06 days,  $p=0.03$ ). The effect on LOS was stronger in trials using a multifactorial dietitian-based approach compared to ONS only interventions ( $p=0.02$  for subgroup difference).

#### **Nutritional Support Reduces Readmissions**

Nutrition intervention significantly reduced the risk of non-elective readmissions compared to control (OR 0.79 [95%CI 0.65 to 0.96],  $p=0.02$ ).

### Conclusion

Nutritional interventions significantly reduced mortality, LOS, and risk of readmissions in medical inpatients at nutritional risk. Trials that used high protein interventions and longer durations of nutritional support yielded the strongest benefits on clinical outcomes.

#### Nutrition Strategies Associated with Reduced Risk of Mortality

- ▶ **Nutritional support**  
(vs. control/standard care,  $p=0.006$ )
- ▶ **Intervention >60 days**  
(vs. <60 days,  $p=0.04$ )
- ▶ **High protein intervention**  
(vs. lower protein,  $p=0.007$ )