

# Good-in-good-out: Diet modification in chronic kidney disease

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The pandemic of chronic kidney disease (CKD) has spurred intense interest in ways to retard the progression of renal failure and improve patient survival. Management of patients during the early stages of CKD influences their survival even after initiation of renal replacement therapy, such as dialysis, underscoring a need for early intervention. CKD is characterized by retention of several products of protein metabolism (uremic toxins), which has toxic consequences such as progression of CKD and cardiovascular disease. This understanding formed the basis for the use of low-protein diets in early stages of CKD. In prior studies, such diets showed beneficial effects on delaying the symptoms of CKD and initiation of dialysis. Challenging this approach, a post hoc analysis from another recent study found increased mortality with protein restriction, which was attributed to the lack of essential amino acids in the diet. Addressing this specific issue, Bellizzi *et al.* examined the effects of a low-protein diet supplemented with ketoacids, the source of essential amino acids, on patient mortality after initiation of dialysis.

In a cohort of 9610 Italian patients with CKD, the authors retrospectively compared the following three groups: (i) patients on a very low-protein diet (0.58 g protein/kg/day) supplemented with ketoacids (s-VLPD); (ii) patients on a diet with protein intake of 0.83 g/kg/day but without s-VLPD; and (iii) a control group of CKD patients who had no intensive dietary follow-up. These patients began maintenance dialysis therapy throughout Italy, and the primary outcome was the survival of the patients after beginning dialysis. The authors used propensity score analysis to match diet-treated patients to controls beginning dialysis. No increased mortality was observed in the s-VLPD group, and both experimental groups had improved survival compared to the control group. Interestingly, patients younger than 70 years and those without cardiovascular disease exhibited the most benefit from s-VLPD.

Despite limitations such as retrospective design and the lack of information on protein intake in the control group, this study removes the suspicion of increased mortality and protein malnutrition caused by protein restriction and reestablishes support for the low-protein diet in CKD management. Reducing uremic toxins to minimize the burden of cardiovascular disease or progression of renal failure is the cornerstone of renal replacement therapy, and achieving this with dietary changes early in the course of CKD represents a potentially impactful intervention with long-term beneficial effects.

V. Bellizzi *et al.*, Very low-protein diet plus ketoacids in chronic kidney disease and risk of death during end stage renal disease: A historical cohort controlled study. *Nephrol. Dial. Transplant.* **30**, 71–77 (2015). [[Abstract](#)]

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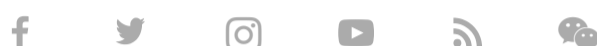
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