Chronic kidney disease (CKD) is associated with physical function decline and worsening comorbidity burden. A recent study published in the Journal of the American Society of Nephrology (1) reports findings from the LANDMARK III study, a years-long, longitudinal randomized study of a multi-disciplinary, clinic-based and lifestyle intervention for Australian patients with CKD stages 3a−4. The intensive intervention required a treatment team of nurse practitioners, exercise physiologists, dieticians, diabetes educators, psychologists, and nephrologists. Risk factors addressed included blood pressure, weight, and cardiorespiratory fitness. The 81 intervention-group patients attended 4 weeks of behavior and lifestyle intervention and 8 weeks of center-based supervised exercise, followed by interval review for ongoing adherence (scheduled telephone calls at least once a month with gym-refresher sessions as needed). Over the 3-year follow-up, 16% of patients dropped out each year due to death, dialysis initiation, patient choice, or funding cessation.

This publication focuses on the trial’s secondary outcomes, including physical activity levels, cardiorespiratory fitness (peak oxygen consumption \( \text{VO}_2 \)), exercise capacity (peak metabolic equivalent and 6-minute walk distance), and neuromuscular fitness. Physical activity level improved markedly in the intervention arm: 63% met recommended guidelines for physical activity compared with 29% at baseline; in contrast, those in the usual care group who met the target decreased by 8%. Cardiorespiratory fitness and exercise capacity improved in the intervention group compared with the control group at 1 year, and the difference persisted in years 2 and 3. Similar effects, albeit less marked, were on neuromuscular strength. Measures of body composition (body mass index and waist circumference) improved in the intervention arm, but neither blood pressure nor biochemical markers (creatinine, glucose, or lipid) differed between the groups.

Compared with other studies on exercise interventions in patients with CKD (2−4), this study is notable for the intensity of its intervention, long follow-up, and comprehensiveness of its outcomes. The resulting improvements are impressive, may potentially improve hard outcomes such as hospitalization and mortality, and serve as a proof-of-concept for the efficacy of exercise interventions. However, many medical homes that care for CKD patients will likely face steep barriers to implementation of such broad and intensive intervention. Interdisciplinary relationships are often disincentivized under current reimbursement structures. Furthermore, practices serving underserved communities may have difficulty recruiting qualified practitioners regardless of incentives. Patients may also lack the resources to attend such intensive programs, with low uptake and high drop-out even if the programs were in place. CKD providers should take heart that progress against physical decline is possible, while planning for the challenging path toward widespread practice change.

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References


Exercise Therapy Enhances Exercise Capacity and Cardiorespiratory Fitness in Patients with CKD

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