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**Association of Accelerometer-measured Physical Activity with Incident CKD:
A UK Biobank Study**

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Objectives : Physical activity may have beneficial effects on the development of chronic noncommunicable diseases; however, limited data are available on its positive influence on kidney health. We investigated the association between device-measured physical activity and risk of incident chronic kidney disease (CKD).

Methods : This prospective study of UK Biobank cohort analyzed 61,726 participants without baseline CKD who underwent a 1-week accelerometer study. The main predictor was the average accelerometer-measured physical activity. The primary outcome was incident CKD based on diagnosis codes.

Results : During a median follow-up of 7.6 years, 1,191 (1.9%) incident CKD events occurred, with an incidence rate of 2.55 per 1,000 person years. In the multivariable cause-specific model, adjusted hazard ratios (95% confidence intervals) for the second, third, and highest quartiles were 0.84 (0.72–0.97), 0.80 (0.68–0.95), and 0.77 (0.64–0.93), respectively, compared with the lowest quartile. This beneficial association remained consistent when secondary analyses were conducted using an expanded definition of incident CKD using either a code or two consecutive measurements of estimated glomerular filtration rate <60 mL/min/1.73 m² or urine albumin-to-creatinine ratio >30 mg/g. Consistent findings were observed in several sensitivity analyses using raw recorded acceleration data without metabolic equivalent of tasks estimation, after excluding individuals who developed CKD during the first 2 years, or using different follow-up dietary data with protein/energy estimation. This relationship was not influenced by age, body mass index, blood pressure, kidney function, albuminuria, or lipid levels.

Conclusions : Higher accelerometer-measured physical activity was independently associated with a lower risk of incident CKD.