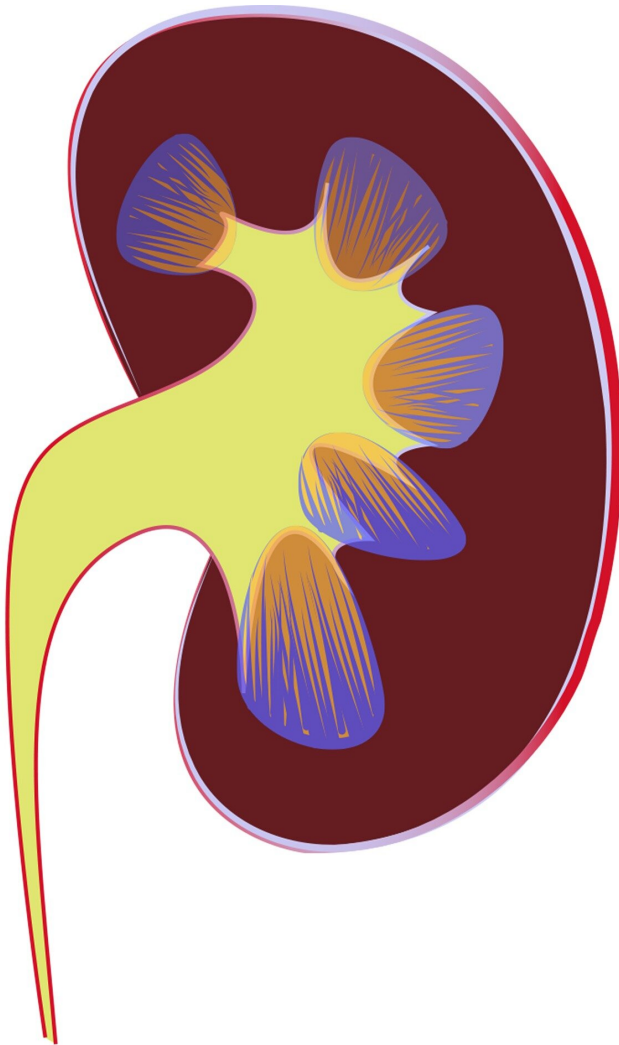


# Exercise linked with better health in patients with kidney disease

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The first study to report the optimal amount of physical activity in patients with kidney disease is published on World Kidney Day in the *European Journal of Preventive Cardiology*, a journal of the European Society of Cardiology (ESC). Kidney disease was less likely to progress in active individuals, who also had less heart problems and improved survival.

The World Health Organization (WHO) recommends at least 150 minutes of moderate-intensity (e.g. walking) or at least 75 minutes of vigorous-intensity (e.g. jogging) weekly physical activity, or an equivalent combination, for [health benefits](#) in adults.<sup>2</sup> This study found that patients with [kidney](#) disease whose activity level ranged from the WHO minimum up to twice that amount had the best health over a follow-up of nearly two years. Remaining active was crucial to sustaining the benefits.

Study author Professor Der-Cherng Tarng of Taipei Veterans General Hospital and National Yang-Ming University, Taiwan said: "Our results suggest that physical activity should be integrated into the clinical care of patients with kidney disease."

Chronic kidney disease affects around 700 million people worldwide.<sup>3</sup> Muscle wasting results in physical inactivity which increases the risk of cardiovascular disease—the main cause of death in these patients. Once chronic kidney disease progresses to end-stage renal disease, the risk of cardiovascular death is 10-20 times higher compared with the general population. This means that slowing progression is important for heart health and longevity.

This was the first large-scale study to investigate the association between physical activity and progression of kidney disease. Specifically, the study examined the links between exercise and all-cause mortality, end-stage renal disease, and cardiovascular events in kidney disease patients.

The study included 4,508 patients with chronic kidney disease between 2004 and 2017. Patients were not on dialysis. Patients were divided into three groups according to weekly physical activity assessed with the National Health and Nutrition Examination Survey (NHANES) questionnaire: highly active (WHO minimum or more), low-active (less than the WHO minimum), or inactive (no

activity).

A total of 1,915 patients were classified as highly active, 879 were low-active, and 1,714 were inactive. During a median follow-up of 686 days, 739 patients died, 1,059 developed end-stage renal disease, and 521 had a major adverse cardiovascular event (heart attack, stroke, hospitalisation for heart failure, or death from cardiovascular disease). The highly active group had the lowest chance of all these adverse outcomes, followed by the low-active and inactive groups.

The researchers analysed the association between physical activity and adverse outcomes after adjusting for other factors that could influence the relationships including age, sex, smoking, body mass index, blood pressure, medications, and other conditions such as diabetes, coronary artery disease, and cancer. Compared to the inactive group, the highly active group had a 38% lower risk of death, 17% lower risk of end-stage renal disease, and 37% lower risk of major adverse cardiovascular events. The health benefits in the low-active group did not reach statistical significance.

Study author Dr. Wei-Cheng Tseng of Taipei Veterans General Hospital and National Yang-Ming University noted that the likelihood of cardiovascular events did not further decrease once activity surpassed double the WHO minimum. He said: "Extreme amounts of exercise can induce heart rhythm disorders (arrhythmias) in those with kidney [disease](#). It therefore seems sensible to avoid very high levels to maximize the benefits and minimise the risks."

To examine the impact of changing usual exercise habits, activity was reassessed six months after the first measurement. Highly active patients who became more sedentary had two-fold increased risks of death and cardiovascular events compared to those who stayed highly active. Dr. Tseng said: "This highlights the importance of maintaining [physical activity](#) among patients with [kidney disease](#)."

**More information:** Kuo CP, Tsai MT, Lee KH, et

al. Dose-response effects of physical activity on all-cause mortality and major cardiorenal outcomes in chronic kidney disease. *European Journal of Preventive Cardiology* (2021).

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