

High weekly physical activity levels linked to lower kidney disease risk in diabetes and overweight/obesity

February 6 2024



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Clocking up high weekly levels of moderate to vigorous intensity physical activity is linked to a lower risk of developing chronic kidney

disease in overweight/obese people with type 2 diabetes, finds research published online in the *British Journal of Sports Medicine*.

But boosting the weekly tally by just over an hour is linked to a 33% reduction in risk, with the effects apparent for bouts lasting above or below 10 minutes at a time, the findings indicate.

Diabetes is the leading cause of chronic kidney disease, accounting for 30–50% of all such cases. Diabetes plus chronic kidney disease is associated with a 10-fold or greater increase in the risk of death from any cause compared with diabetes alone, point out the researchers.

Over the short term, the evidence shows that exercise improves [kidney function](#) in people with type 2 diabetes, but it's not clear what the benefits might be over the longer term, or whether these are cumulative, and/or dependent on session length, say the researchers.

To investigate, they did a secondary analysis of data from the US Look AHEAD trial. This was a multicenter, randomized controlled trial that compared the cardiovascular outcomes of an intensive lifestyle intervention with standard diabetes support and education in 5,145 overweight/obese adults with type 2 diabetes.

The current analysis was restricted to an activity tracker study carried out at 8 of the 16 trial sites, involving 1,746 Look AHEAD participants with an average age of 58. More than half (59%; 1,025) were women.

Levels of moderate to vigorous physical activity were measured at the start of the study, then 1, 4, and 8 years later, using an activity tracker to assess the potential impact on progression to chronic kidney, or end stage, disease.

Chronic kidney disease was defined as a deterioration of at least 30% in

the estimated glomerular filtration rate (eGFR)—the rate at which kidneys remove waste and extra water from blood to make urine—to less than 60 ml/min.

The average total weekly tally of moderate to vigorous physical activity was 329 mins; the amount accumulated in bouts of less than 10 minutes, 267; and the amount accumulated in bouts of 10 or more was 41.

During an average monitoring period of 12 years, around 1 in 3 (567) participants progressed to chronic kidney disease.

Those who clocked up the most moderate to vigorous physical activity every week of 329 to 469 mins were significantly less likely to progress to chronic kidney disease than those clocking up the least—under 220 mins.

Overall, a higher cumulative weekly average was associated with a 9% lower risk for every 100 mins, and with a 19% lower risk if achieved in bouts lasting at least 10 mins at a time.

Boosting the weekly tally by at least an hour (63 mins +) over the course of the first 4 years of the study was associated with a 33% lower risk compared with the largest recorded decrease of 198 mins/week.

And among the weekly "improvers," a lower risk of progression was observed for physical activity bouts lasting both above and below 10 minutes, the findings showed.

This is an observational study, and as such, can't establish cause. The researchers also acknowledge that the study participants were highly motivated so may not be broadly representative of overweight/obese people with diabetes.

But they highlight, "These findings are consistent with evidence that regular [physical activity] has direct anti-inflammatory effects, and can promote glycemic control, improve [insulin sensitivity](#), [blood pressure](#), lipid profiles and other metabolic and cardiovascular risk factors, all of which are associated with renal function.

"Furthermore, the association between [moderate to vigorous [physical activity](#)] and progression to [chronic kidney disease] was nearly linear, without an observable plateau or a clear threshold, suggesting that people with diabetes should be encouraged to engage in as much [of this exercise intensity] as they can tolerate to maximize the benefits."

The researchers suggest that overweight/obese adults with type 2 [diabetes](#) might want to do just over an hour (67 mins) of moderate intensity activity every day in the form of a brisk walk, cycling, jogging, or swimming to reach 469 mins every week to curb their risk of progression to [chronic kidney disease](#).

More information: Association of accelerometer-measured physical activity and its change with progression to chronic kidney disease in adults with type 2 diabetes and overweight/obesity, *British Journal of Sports Medicine* (2024). [DOI: 10.1136/bjsports-2023-107564](https://doi.org/10.1136/bjsports-2023-107564)

Provided by British Medical Journal

Citation: High weekly physical activity levels linked to lower kidney disease risk in diabetes and overweight/obesity (2024, February 6) retrieved 28 April 2024 from <https://medicalxpress.com/news/2024-02-high-weekly-physical-linked-kidney.html>

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