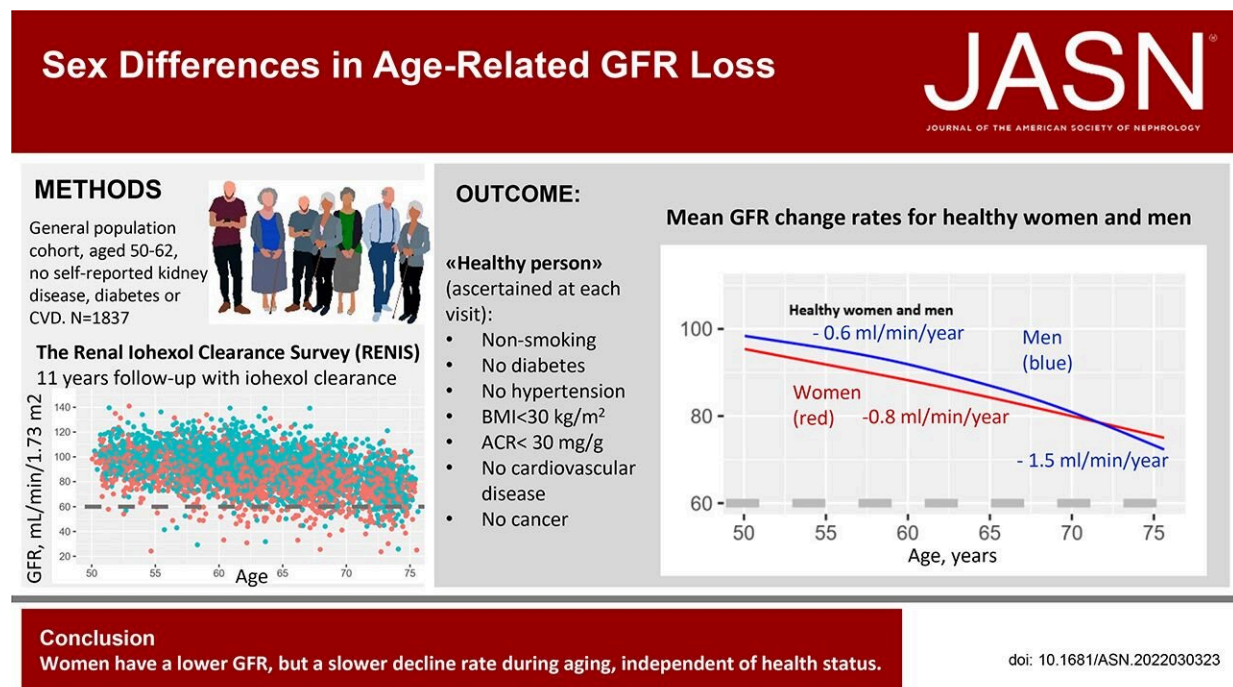


Study reveals sex differences in age-related loss of kidney function

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Visual abstract. Credit: *Journal of the American Society of Nephrology* (2022).
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Although more women than men have chronic kidney disease (CKD), more men develop kidney failure. In a study in the *Journal of the American Society of Nephrology* of a northern European population that sought to explain this contradiction, kidney function was lower in middle-aged women than in men, but the subsequent rate of kidney function

decline during aging was steeper among men. Sex differences related to illnesses and kidney disease risk factors did not explain these differences.

Most people lose part of their kidney function when they get older, and because the population is aging worldwide, more people are developing CKD. The Global Burden of Disease study predicts that CKD will be the fifth most common cause of years of life lost by 2040.

Kidney-related biological differences between women and men and gender differences in lifestyle-related risk factors have been proposed as potential explanations for the apparent contradiction that women have reduced kidney function compared with men but lower rates of kidney failure. To provide insights, Toralf Melsom, MD (University Hospital of North Norway and UiT, Arctic University of Norway) and his colleagues recruited 1,837 adults (53% women, aged 50–62 years) in northern Europe who were representative of the general population and did not have self-reported diabetes, CKD, or cardiovascular disease. Participants' kidney function was measured in 2007–2009, 2013–2015, and 2018–2020.

"Because the common method to estimate kidney function using creatinine levels in the blood is inaccurate and unreliable, we measured the kidney function by intravenous injection of a kidney filtration marker—the contrast media iohexol. A blood sample was collected 3–4 hours later to calculate the kidney filtration rate," explained Dr. Melsom. "This method has been regarded as too complicated to use in population-based studies; however, during 11 years of follow-up, we performed more than 4,000 kidney function measurements in 1,837 people."

The study revealed that women tended to have lower kidney function than men in 2007–2009. Women's kidney function then declined over time in a linear fashion, but men's kidney function dropped more rapidly

at older ages. People with no major chronic diseases or [risk factors](#) for CKD maintained better kidney function, but [health status](#) did not explain the [sex differences](#) in kidney function decline.

"This study is the first study that repeats accurate measurements of kidney function in relatively healthy women and men during aging. By doing so, we provide important knowledge regarding age-related loss of kidney function and sex disparities in the prevalence of CKD," said Dr. Melsom. "The study may in part explain why more women are diagnosed with early CKD and more men develop severe CKD and kidney failure during aging. Accelerated loss of kidney function has been associated with premature death in previous studies. The role of age-related loss of [kidney function](#) on healthy aging and life expectancy in women and men should be addressed in further studies."

More information: Toralf Melsom et al, Sex Differences in Age-Related Loss of Kidney Function, *Journal of the American Society of Nephrology* (2022). [DOI: 10.1681/ASN.2022030323](https://doi.org/10.1681/ASN.2022030323)

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