

# Urine tests not reliable for dehydration in older adults

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Credit: Community Eye Health, Flickr

Urine tests should not be used to measure dehydration among the elderly – according to new research from the University of East Anglia (UEA).

Water-loss [dehydration](#) happens when people don't drink enough fluid. Urine tests are widely used by medics, nurses and other health professionals to screen for water-loss dehydration among older people.

But new research published today reveals that the [diagnostic accuracy](#) of

[urine tests](#) is too low to be useful and that the tests should not be used to indicate hydration status in older people.

Lead researcher Dr Lee Hooper from UEA's Norwich Medical School said: "Around 20 per cent of older people living in residential care don't drink enough fluid, so are dehydrated. This figure rises to around 40 per cent among older adults admitted to hospital.

"Dehydration often goes unnoticed by carers, but it can lead to increased risk of hospital admission, urinary tract infections, disability and even death.

"Early identification, prevention and treatment of dehydration would likely improve the health of older people and reduce healthcare costs.

"Dark urine and high urine specific gravity have long been described as clinical indicators of dehydration – with nursing and medical text books, reviews, guidelines and public websites all advocating their use.

"We wanted to test their accuracy."

The team assessed 383 men and women aged over 65 living in [residential care](#), nursing homes, or in their own homes in Norfolk and Suffolk.

They tested participants' blood (measured serum osmolality) to assess whether they were drinking enough to stay hydrated – and compared the results with urine samples taken at the same time. They tested urine for colour, cloudiness, specific gravity, osmolality, volume, glucose, and pH.

Dr Hooper said: "Assessing a [urine sample](#) is simple and cheap. But our research shows that urine tests for dehydration are not fit for purpose – either alone or as part of a wider tranche of tests. They are not sensitive or specific enough. Urine tests will indicate that some people are

dehydrated when they are not, but the urine tests also miss some older adults who really are dehydrated.

"Urine colour for example can be altered by medical conditions, medications such as warfarin and by eating certain foods such as beetroot or blackberries.

"Urinary tests rely on normal kidney function. While urine tests do seem to be able to indicate hydration status in children and younger adults, ageing is associated with impaired kidney function. As we get older we cannot concentrate our urine as well as younger people – so urine tests are not useful in [older adults](#) for indicating hydration.

"There is a great need to develop simple, inexpensive and non-invasive tools for the assessment of dehydration in older people."

'Water-loss (intracellular) dehydration assessed using urinary tests, how well do they work? Diagnostic accuracy in [older people](#)' is published in *The American Journal of Clinical Nutrition*.

Provided by University of East Anglia

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