

Doctors can use CT scans with less radiation to diagnose appendicitis

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A new paper in the *British Journal of Surgery*, published by Oxford University Press, indicates it's now possible to diagnose appendicitis using low-dose CT scans, decreasing the radiation exposure, which is of

significant clinical importance especially in young patients.

Appendicitis is one of the most common causes of hospital admissions and appendicectomies are some of the most common surgical procedures performed worldwide. It can be difficult to diagnose [appendicitis](#), however. Such difficulties may delay or lead to unnecessary surgeries. Contrast-enhanced computed tomography (CT) scans are very useful in helping doctors to make the [correct diagnosis](#) but there are concerns about [radiation exposure](#).

The increasing evidence on the safety and efficacy non-operative treatment for uncomplicated [acute appendicitis](#) has set new demands for the accuracy of diagnostics in both acute appendicitis and appendicitis severity. As an emergency appendicectomy is no longer considered the only treatment alternative for patients with uncomplicated acute appendicitis, the emphasis has shifted from solely assessing whether a patient has appendicitis or not toward differentiating between uncomplicated and complicated acute appendicitis.

Imaging has become standard in appendicitis diagnosis, reducing both the negative appendicectomy rate and overall treatment costs. Although an ultrasound is often used in the paediatric population to avoid the dangers of radiation, a CT scan is the most accurate way to diagnose appendicitis in adults.

Researchers here studied patients treated between April 4, 2017 and November 27, 2018 at Turku University Hospital, Finland. The hospital admitted a total of 989 patients to the [emergency room](#) with suspected acute appendicitis. Some 53% percent underwent low-dose CT scans and 47% were diagnosed with standard-dose CT scans. Researchers found the overall accuracy of low-dose and standard-dose CT scans in identifying patients with and without acute appendicitis was 98% and 98.5% respectively. The accuracy for differentiating between

uncomplicated and complicated acute appendicitis using the different types of CT scans was 90.3% and 87.6% respectively.

This study shows that low-dose and standard-dose CT scans were accurate both in identifying appendicitis and in differentiating between serious cases requiring surgery and those that can be treated with antibiotics alone.

"The results of this study suggest that the diagnostic CT scan radiation dose can be significantly decreased without impairing diagnostic accuracy, said the paper's lead author, Paulina Salminen. "These findings will hopefully encourage physicians to implement low-dose CT modalities at emergency departments for acute appendicitis imaging to avoid unnecessary radiation in this very large patient population."

More information: Jussi Haijanen et al, Diagnostic accuracy using low-dose versus standard radiation dose CT in suspected acute appendicitis: prospective cohort study, *British Journal of Surgery* (2021). DOI: [10.1093/bjs/znab383](https://doi.org/10.1093/bjs/znab383)

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