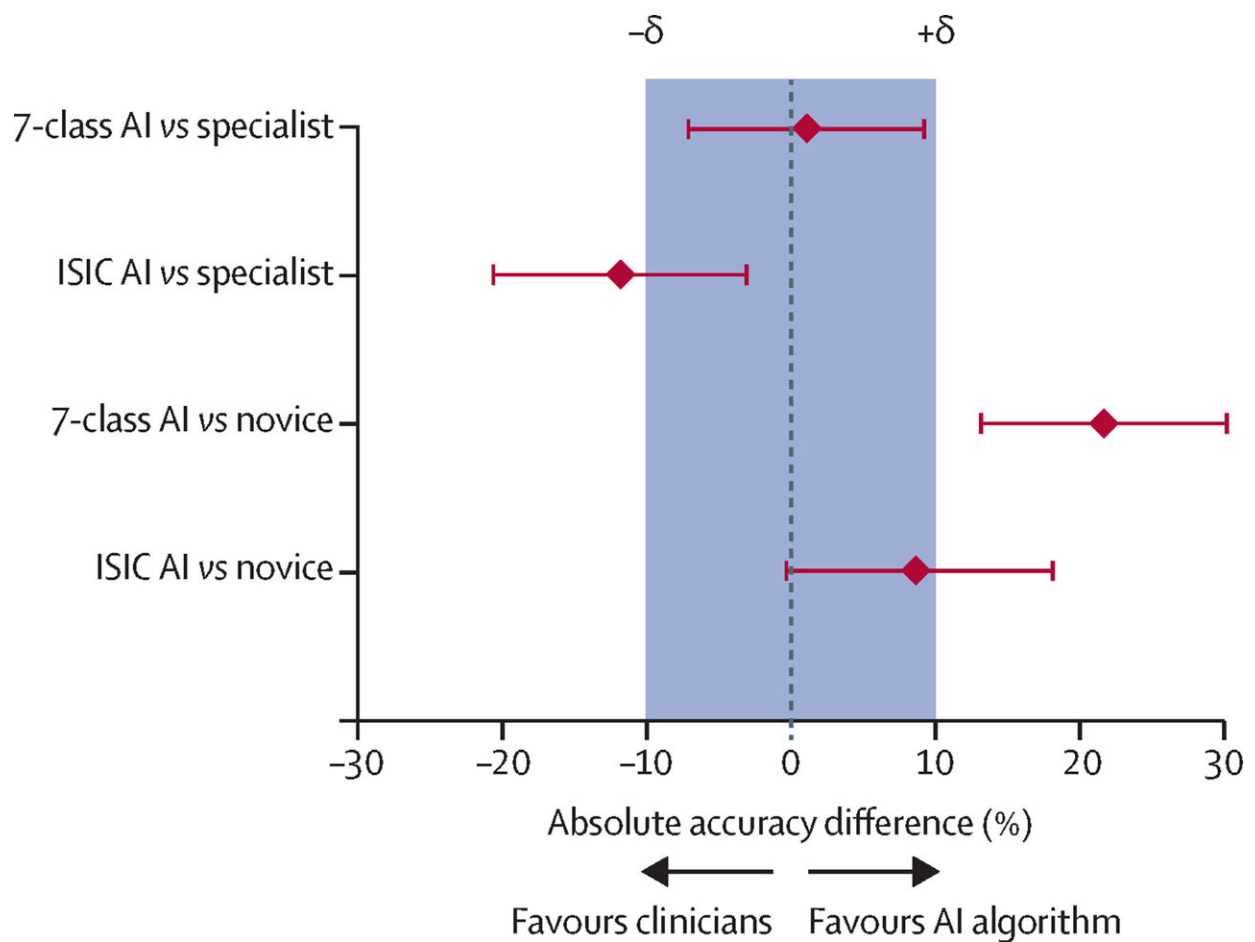


# Study shows skin cancer diagnoses using AI are as reliable as those made by medical experts

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Primary diagnostic trial aim. Credit: *The Lancet Digital Health* (2023). DOI: 10.1016/S2589-7500(23)00130-9

Artificial intelligence (AI) is already widely used in medical diagnostics. An Austrian-Australian research team led by dermatologist Harald Kittler from MedUni Vienna has investigated the extent to which diagnosis and therapy of pigmented skin lesions benefit from it in a realistic clinical scenario.

In a study [published](#) by *The Lancet Digital Health*, the team compared the accuracy in diagnosis and therapy recommendation of two different algorithms in smartphone applications with that of doctors. The results show that the AI application generally performs well in diagnosis. However, doctors were clearly superior when it came to treatment decisions.

The research team tested the AI application under realistic clinical conditions in two [skin cancer](#) centers, the University Department of Dermatology at MedUni Vienna and the Sydney Melanoma Diagnostic Center in Australia. The prospective study consisted of two scenarios, with AI being used in scenario A for changes suspicious of skin cancer and in scenario B for patients with many moles. The AI-assisted application was compared in both cases with both [medical experts](#) and less experienced physicians.

In scenario A, 172 suspicious pigmented lesions (of which 84 were malignant) were examined in 124 patients; in scenario B, the research team analyzed 5,696 pigmented lesions (of which 18 were malignant) in 66 patients. Two different AI-based smartphone applications were used: a novel 7-class AI algorithm and an ISIC algorithm already used in retrospective preliminary studies.

In scenario A, the 7-class AI algorithm showed equivalent diagnostic accuracy compared to the experts while it was significantly superior to the less experienced physicians. The ISIC algorithm, on the other hand, performed significantly worse compared to experts, but better than the

inexperienced users.

## A critical view of AI decisions

In terms of treatment decisions, the 7-class [algorithm](#) was significantly inferior to the experts but superior to the inexperienced users. The results suggest that an AI-assisted smartphone application for skin cancer diagnosis makes similarly good diagnostic decisions as experts in a real clinical scenario. When it came to [treatment decisions](#), however, the experts were superior to the AI.

Kittler said, "The AI application tends to remove more benign lesions in the treatment recommendation than experts would. If you take this into account, the AI application can certainly be used. It should also be borne in mind that if it is used uncritically, too many false-positive findings would have to be clarified."

**More information:** Scott W Menzies et al, Comparison of humans versus mobile phone-powered artificial intelligence for the diagnosis and management of pigmented skin cancer in secondary care: a multicentre, prospective, diagnostic, clinical trial, *The Lancet Digital Health* (2023). [DOI: 10.1016/S2589-7500\(23\)00130-9](https://doi.org/10.1016/S2589-7500(23)00130-9)

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