

Deep learning model IDs area subscore of palmoplantar pustulosis

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A deep learning model can accurately evaluate the area subscore of the

Palmoplantar Pustulosis Area and Severity Index (PPPASI), according to a study published online Feb. 23 in the *Journal of Dermatology*.

Kyungho Paik, from the Seoul National University Bundang Hospital in South Korea, and colleagues developed and validated deep-learning-based algorithms to enable automated and reliable assessment of the area of the involved lesion in PPP. A [dataset](#) of 611 images of the palms and soles of 153 patients with PPP was developed. The area of the lesion was evaluated by dividing the number of pixels in the area of the palms or soles.

Two [convolutional neural network](#) (CNN) models that can evaluate the percentage of the affected area were developed using attention U-net, and a score ranging from 0 to 6 was assigned.

The researchers found that in 98.8 percent of the images, the area subscore of the PPPASI evaluated by the [deep learning algorithm](#) was the same or differed by 1 point from the subscore of ground truth. Between the CNN and ground truth, the intraclass correlation coefficient was 0.879, indicating good agreement. The accuracy of the model was 66.7 percent, and the mean absolute error was 0.344. Most of the differences in the percentage of the affected area lay between the 95 percent confidence interval in a Bland-Altman plot.

"Our findings suggest that this deep-learning algorithm has the potential to automatically estimate the area subscore of the PPPASI accurately and rapidly," the authors write.

More information: Kyungho Paik et al, Evaluation of the area subscore of the Palmoplantar Pustulosis Area and Severity Index using an attention U-net deep learning algorithm, *The Journal of Dermatology* (2023). [DOI: 10.1111/1346-8138.16752](https://doi.org/10.1111/1346-8138.16752)

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