

**Comment on “The effect of platelet-rich plasma on female androgenetic alopecia: A randomized controlled trial”:
Phototrichogram analysis**



To the Editor: With great interest we reviewed the article by Dubin et al,¹ “The effect of platelet-rich plasma on female androgenetic alopecia: A randomized controlled trial.” In this study, platelet-rich plasma therapy was assessed using pre- and post-treatment photographs with hair density and caliber as the primary outcomes. While the phototrichogram results were encouraging as an effective treatment for androgenetic alopecia, we offer some considerations when determining the quantitative effectiveness of this therapy.²

Dubin et al¹ included phototrichogram data in Fig 3 at $\times 50$ magnification to measure hairs per 1 cm^2 . However, the full 1-cm^2 ($1\text{ cm} \times 1\text{ cm}$) imaging areas do not appear to be captured. We have provided a photograph (Fig 1) using an identical folliscope model showing that coverage of only 0.35 cm^2 is possible at this same magnification. Calculation of 1-cm^2 hair density based on 0.35 cm^2 samples may be error prone because of the limited number of hairs captured at this magnification setting. We recommend a $10\times$ to $15\times$ magnification using this folliscope to image 0.7 cm^2 to 1.25 cm^2 of the target area, allowing for more robust hair density calculations to be performed.

In addition, before and after treatment photographs were provided by the authors as Fig 3, A and B, respectively, to show treatment efficacy on a participant. However, the green parameter scale, distance separating hairs, and hair distribution appear to differ between the 2 images. Capturing exact and reproducible phototrichogram data remains challenging but can be approached by using a representative point of focus in the hair loss region, such as a tattoo or natural small macule. In addition, a coordinate or overlay technique can be used.³ Methods demonstrated by other studies enumerate hairs after trimming the area. We also agree with this preparation procedure, because neighboring uncut hairs may potentially conceal or interfere during the counting process.

Lastly, the authors calculate that the density of hair increased by 105 hairs per cm^2 after 24 weeks of treatment. According to a recent meta-analysis,⁴ finasteride had the highest efficacy for the treatment for androgenetic alopecia, but increased hair density by 18.37 hairs/cm^2 . For the vertex and mid-scalp, the region of focus for this study, the balding area is

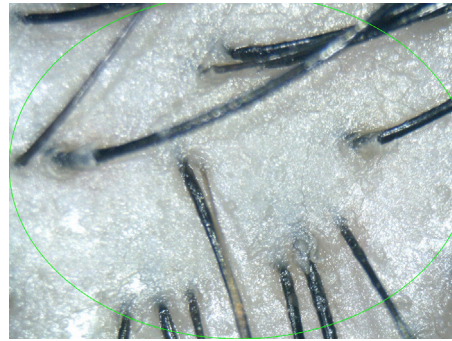


Fig 1. Phototrichogram at $50\times$ magnification capturing about 0.35 cm^2 of scalp.

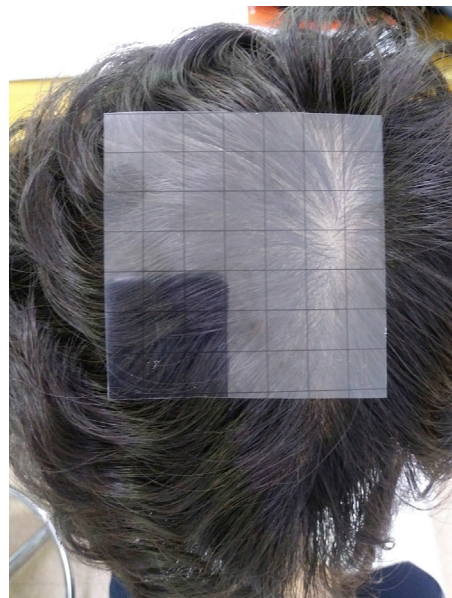


Fig 2. Using the area of 1 unit grid as 1 cm^2 , the typical hair loss in the vertex and mid-scalp region is 70 cm^2 to 100 cm^2 .

usually 70 cm^2 to 100 cm^2 (Fig 2). Therefore, approximately 7000 to 10,000 hairs in the treated area were potentially regenerated based on the density provided by the authors. In comparison to a typical hair transplantation procedure, a highly satisfactory procedure would consider around 4000 hairs implanted by the surgeon with the majority being terminal hairs. An improvement of 105 hairs per cm^2 claimed by the authors would be a significant result. We would consider additional examination to ensure whether hairs were vellus or terminal.

While platelet-rich plasma therapy for the treatment of androgenetic alopecia in this study by Dubin

et al¹ reported highly significant outcomes, we would consider further examination of the phototrichogram quantification methods to determine the potential clinical benefits of this technique.

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Conflicts of interest

None disclosed.

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