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# Enhancing OCT Reliability: The Role of Eye-Tracking in Achieving Consistent Retinal Measurements [Letter]

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## Dear editor

We read with great interest the recent study by Firdaus et al[1], which highlights the reproducibility of optical coherence tomography (OCT) measurements across two different Cirrus HD-OCT models. Their findings provide valuable insights into intermachine reliability and underscore the robustness of ganglion cell–inner plexiform layer (GCIPL) measurements, which exhibited high interdevice reproducibility. However, we wish to raise a note of caution regarding the potential bias that may arise when OCT scans are performed on different devices without standardized positioning, particularly in the absence of eye-tracking functionality.

Eye-tracking technology, integrated into many OCT devices, plays a crucial role in ensuring that sequential scans are consistently aligned within the same retinal area. This technology uses infrared light to detect and monitor small eye movements, adjusting the position of each subsequent scan to match the reference image precisely. Consequently, it minimizes positional discrepancies that could lead to erroneous interpretations of structural changes. This function is particularly critical in longitudinal studies or clinical follow-ups, where precise overlay of OCT scans is necessary for accurate assessment of progression in conditions such as glaucoma and macular degeneration.[2,3]

In their study, Firdaus et al conducted scans on different OCT models without enabling eye-tracking, which led to slight variations in the regions scanned. While the authors successfully demonstrated interdevice reproducibility under these conditions, we believe that including eye-tracking would enhance accuracy in follow-up assessments. For optimal clinical application, we recommend performing an initial scan with eye-tracking enabled, followed by consistent use of this tool across all subsequent assessments on the same device. This approach would reduce potential biases from scan misalignment, thereby strengthening the reliability of comparative OCT data.

We commend the authors for their valuable contribution and emphasize the importance of eye-tracking as an essential consideration for the reproducibility and reliability of OCT follow-up scans.

## Disclosure

The authors report no conflicts of interest in this communication.

## References

1. Firdaus S, Pereira LF, Yang G, Huang-Link Y. Interocular symmetry and intermachine reproducibility of optic disc and macular parameters measured by two different models of optical coherence tomography. *Clin Ophthalmol*. 2024;18:2397–2406. doi:10.2147/OPTH.S465360
2. Vienola K, Braaf B, Sheehy C, et al. Real-time eye motion compensation for OCT imaging with tracking SLO. *Biomed Opt Expr*. 2012;3(11):2950–2963. doi:10.1364/BOE.3.002950
3. Lauermann J, Treder M, Heiduschka P, Clemens C, Eter N, Alten F. Impact of eye-tracking technology on OCT-angiography imaging quality in age-related macular degeneration. *Graefes Arch Clin Exp Ophthalmol*. 2017;255:1535–1542. doi:10.1007/s00417-017-3684-z

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