Revolutionising Visual Field Evaluation: Introducing Gaze Analyzing Perimeter FIELDNavigator (Product name “GAP” in Japan)

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INTRODUCTION

- Visual field evaluation plays a crucial role in diagnosing and managing various ophthalmic conditions, ranging from glaucoma to neurological disorders. Traditional static automated perimetry has long been the gold standard for assessing visual fields, with devices like the Humphrey Field Analyzer (HFA) dominating the market. However, despite its precision, static perimetry has its limitations, particularly regarding fixation stability and reliability of results.
- In this Whitepaper, we introduce a groundbreaking solution that addresses these challenges and revolutionizes visual field evaluation: FIELDNavigator (GAP). Developed by FINDEX Inc, , Tokyo, FIELD-Navigator (GAP) offers a new approach to automated perimetry, leveraging innovative measurement principles and advanced technology to provide objective and reliable assessments of visual fields.

Challenges with Traditional Static Perimetry

Traditional static automated perimetry, while precise, is not without its drawbacks. One of the key challenges is the reliance on fixation stability. Patients must maintain gaze at a fixation point throughout the test, and any shifts in fixation can significantly impact the reliability of results. Additionally, the mechanism of informing the patient to press a button upon recognising a visual target may not be suitable for all patients, leading to compromised reliability.

Introduction of FIELDNavigator (GAP)

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FIELDNavigator (GAP) represents a paradigm shift in visual field evaluation. Unlike traditional static perimetry, which relies on button manipulation by the patient, FIELDNavigator (GAP) utilises eye gaze analysis to assess visual fields. The device consists of a head-mounted display and dedicated software, allowing for the recording of eye gaze at an impressive maximum of 240 frames per second.

Specifications of Gaze Analyzing Perimeter

Items	Values
Dimension	122mm(H) x 201mm(W) x 148MM(D)
Weight	400g
Image input	USB Type-C Altern ateMode
Field of view	105 degrees
Spherical correction	-10.0 to 10.0D
Cylinder correction	6.0D
Eye tracking frame rate	240 fps
Display	OLED
Screen size	6.4 inches
Resolution	1,080 x 2,340
Maximum luminance	10,000 asb
Contrast rate	1,000,000 : 1
Display gradation	1 billion colours

Technical Specifications and Performance

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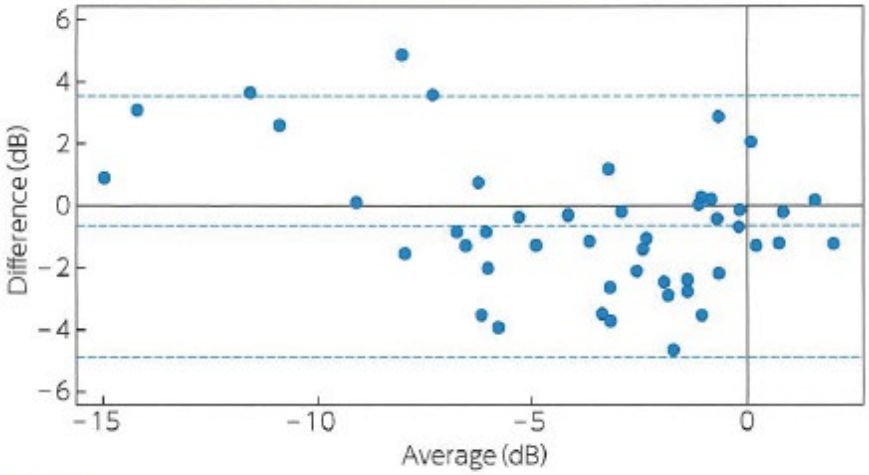
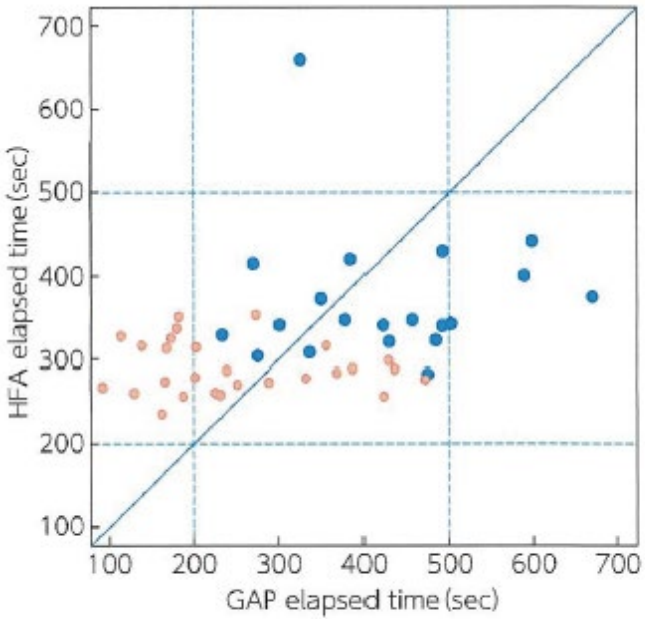


(Fig. 1) Bland-Altman analyses: Agreement between HFA and FIELDNavigator (GAP) results



(Fig. 2) Measurement time between HFA and FIELDNavigator (GAP).
Red points: More than -3dB MD by HFA.

Strengths and Weaknesses

One of the key strengths of FIELDNavigator (GAP) is its ability to provide objective assessments through eye gaze analysis. Unlike traditional static perimetry, which relies on patient responses, FIELDNavigator (GAP) offers a more objective measure of visual field function. However, it's important to acknowledge its limitations, including challenges with accurate eye tracking in certain patient populations.

Future Outlook

Looking ahead, FIELDNavigator (GAP) holds immense promise for the future of visual field evaluation. With ongoing advancements in technology and research, we anticipate further developments in FIELDNavigator's (GAP's) capabilities, potentially expanding its applications beyond perimetry to include pupillometry, oculomotor assessment, and even screening for mild cognitive impairment.

Conclusion

In conclusion, FIELDNavigator (GAP) represents a significant advancement in visual field evaluation, offering a more objective and reliable approach compared to traditional static perimetry. With its innovative technology and potential for further development, FIELDNavigator (GAP) is poised to transform the way we assess and manage visual field abnormalities in clinical practice.

PUBLICATION BY

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