# Diagnostic efficacy of 24-2 and 24-2C SITA Faster global summary indices

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## PURPOSE

SITA Faster is a version of the SITA Fast thresholding visual field strategy[1] optimized for speed and available for the 24-2 and 24-2C test patterns[2, 3]. In this clinical study, we explored the diagnostic efficacy of global summary indices derived from SITA Faster in a preliminary cohort of normal and glaucomatous eyes.

## METHODS

- 24-2 SITA Standard (SS-24), 24-2 SITA Fast (SF-24), and 24-2C SITA Faster (SFR-24C) visual fields (VFs) were acquired on an HFA3 perimeter (ZEISS, Dublin, CA) at each of two visits on one eye of a group of 25 normal and 25 glaucomatous subjects. 24-2 SITA Faster (SFR-24) VFs were extracted from SFR-C. The last qualified test for each VF was used for data analyses.
- The diagnostic performance for the VF global indices of Mean Deviation (MD) and Visual Field Index (VFI) was assessed using the area under the receiver operator characteristic curve (AROC) and sensitivity.
- Indices were calculated with 54 (24-2) and 64 (24-2C) points. SS-24 and SF-24 AROCs were compared to SFR (see Figure 1).

## CONCLUSIONS

- The findings in this preliminary cohort showed no significant difference in diagnostic performance of global summary indices between the 24-2 and 24-2C SITA Faster compared to those of SITA Standard and SITA Fast.
- SITA Faster may provide a reasonable clinical alternative to current clinical threshold strategies for the diagnosis of glaucoma.
- The additional test locations in the 24-2C test pattern may enable earlier detection of central visual defects and therefore potentially earlier detection of glaucoma.

**References:**

[1]Heijl A, et al. *AJO*, 2019; 198:154–165.

[2]Callan T, et al. *IOVS*, 2018; 59(9): ARVO E-Abstract 5111.

[3]Lee GC, et al. *IOVS*, 2018; 59(9): ARVO E-Abstract 6032.

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## RESULTS

- Mean age was 55.2 (standard deviation, SD: 9.4; range: 27 to 69) years for normal subjects and 68.8 (SD: 9.1; range 52 to 83) years for glaucoma patients (P<0.001).
- Mean $MD_{SFR-24}$ was 0.75 (SD: 1.11; range: -2.76 to 2.28) dB and -2.83 (SD: 5.33; range: -21.77 to 1.61) dB in normal and glaucomatous eyes (P=0.002), respectively (see Table 1).
- Figure 2 and Table 2 show that SFR-24 and SFR-24C global indices did not result in statistically different AROCs compared to SS-24 and SF-24 (all $P > 0.05$). Sensitivities were also comparable.

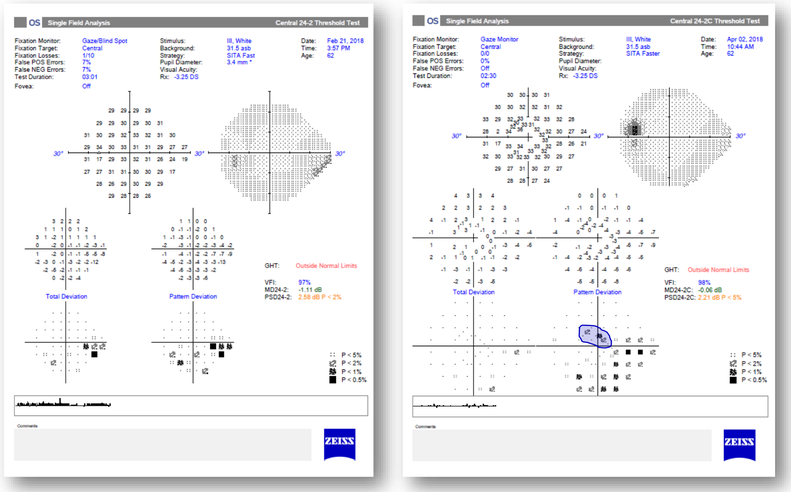

**Figure 1**. Example of a traditional 24-2 SITA Fast versus a 24-2C SITA Faster visual field with comparable global indices. A superior central defect missed by the 24-2 can be seen in the 24-2C visual field (highlighted in blue) .

| Index | Test | Normal | Glaucoma | *P*-value |
|---|---|---|---|---|
| MD [dB] | SS-24 | 0.57 ± 1.01 | -3.13 ± 5.56 | 0.002 |
| | SF-24 | 0.89 ± 1.09 | -2.83 ± 5.36 | 0.001 |
| | SFR-24 | 0.75 ± 1.11 | -2.83 ± 5.33 | 0.002 |
| | SFR-24C | 0.80 ± 1.11 | -2.76 ± 5.31 | 0.002 |
| VFI [%] | SS-24 | 99.4 ± 0.5 | 91.7 ± 16.6 | 0.013 |
| | SF-24 | 99.6 ± 0.6 | 92.3 ± 15.6 | 0.013 |
| | SFR-24 | 99.4 ± 1.3 | 92.5 ± 15.4 | 0.016 |
| | SFR-24C | 99.4 ± 1.3 | 92.5 ± 16.5 | 0.022 |

Mean ± Standard Deviation

**Table 1**. Summary of global indices. MD and VFI values were significantly different between the normal and glaucomatous cohorts.

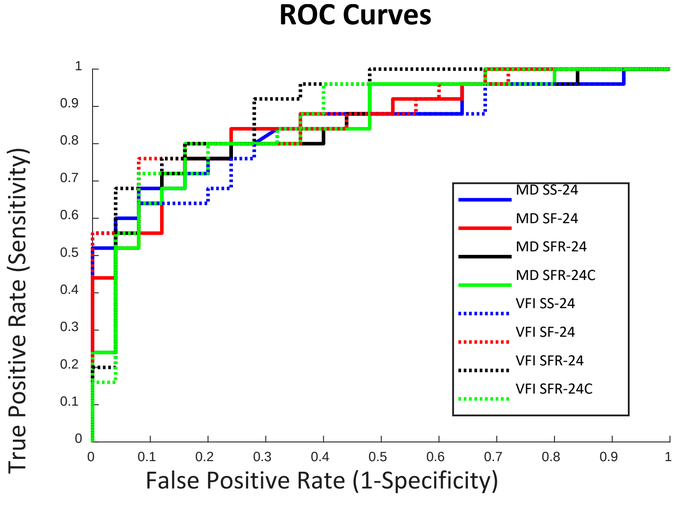


**Figure 2**. ROC curves for MD and VFI.

| Index | Test | AROC | *P*-value vs SFR-24 | *P*-value vs SFR-24C | Sensitivity (95% Specificity) |
|---|---|---|---|---|---|
| MD [dB] | SS-24 | 0.85 [0.74, 0.96] | 0.970 | 0.970 | 60 [39, 79]% |
| | SF-24 | 0.86 [0.75, 0.97] | 0.754 | 0.750 | 52 [31, 72]% |
| | SFR-24 | 0.85 [0.74, 0.96] | --- | 1.000 | 56 [35, 76]% |
| | SFR-24C | 0.85 [0.74, 0.96] | 1.000 | --- | 52 [31, 72]% |
| VFI [%] | SS-24 | 0.84 [0.72, 0.95] | 0.224 | 0.579 | 60 [39, 79]% |
| | SF-24 | 0.87 [0.77, 0.97] | 0.468 | 0.937 | 56 [35, 76]% |
| | SFR-24 | 0.90 [0.81, 0.99] | --- | 0.115 | 68 [47, 85]% |
| | SFR-24C | 0.87 [0.76, 0.97] | 0.115 | --- | 56 [35, 76]% |

[95% Confidence Interval]

**Table 2**. AROC and Sensitivities at 95% specificity. For both MD and VFI, diagnostic efficacy was not significantly different between the various test types.