Interpreting the New HRT3 OU Report

Patient Information — Ethnicity indicates appropriate database.

Quality — Score for quick quality assessment. Scores below 30 represent good-quality images.

Optic Disc Size — Unusual sizes identified.

CUP — Topography image with cup in red and neuroretinal rim in blue and green. Size and shape can be evaluated for rim thinning.

RIM — Moorfields Regression Analysis (MRA) identifies sectors with rim damage. Green checks indicate normal results, yellow exclamation points indicate borderline, and red X's indicate outside normal limits. Temporal inferior and superior sectors are most sensitive for detecting early damage.

RNFL Profile Graph — Displays the height values at the optic disc margin going around the optic disc from the temporal side, to superior, nasal, inferior, and back to temporal (TSNIT). The green shaded area is the normal range, yellow is borderline, and the red zone indicates outside normal limits.

CUP, RIM, and RNFL Parameters — Adjusted for age and optic disc size, and compared to ethnic-specific databases. Classifications with probability values are given.

Asymmetry — Gives difference between eyes with significance level and classification.

Inter-Eye Asymmetry — Evaluates the symmetry of the RNFL profile between eyes. If the correlation between eyes is good, the value will be near 100%; poor symmetry will be flagged as abnormal. Poor symmetry can be an early indicator of glaucoma.

RNFL Profile Comparison — Degree of asymmetry can be assessed.
1. Assess image quality.

The first step in clinical interpretation of any printout is an assessment of image quality. Make sure you are interpreting a good-quality image because poor quality can affect the results and should be interpreted with caution. You should look for a Standard Deviation (SD) of 30 µm or less. SD values greater than 30 µm should be repeated when possible. SD values greater than 50 µm should be used with caution.

2. Check optic disc size.

The size of the optic disc is provided and classified as small, average, or large. Small optic discs will tend to have small cups, even in glaucoma, while large optic discs will tend to have large cups, even in healthy eyes.

3. Evaluate the CUP.

Check the size, shape, and classification status of the cup parameters. The cup shape parameter has been shown to be very sensitive for detecting early glaucoma. Also check for asymmetric cupping and asymmetric cup parameters.

4. Evaluate the RIM.

Check the Moorfields Regression Analysis (MRA) results and rim parameters. When localized rim thinning is detected by the MRA, it will be marked by a yellow exclamation point (黄色) or red X (红色) if the result is borderline or outside normal limits, respectively. Even one abnormal sector can indicate significant damage. Pay particular attention to the Superior Temporal and Inferior Temporal sectors as these tend to reveal damage first. The rim parameters provide a good overall assessment, but do not identify local damage because they evaluate the global rim structure. Asymmetry values provide an additional check for suspicious pathology.

5. Evaluate the RNFL.

Carefully inspect the RNFL Profile graphs for local regions that fall outside normal and for areas of asymmetry between eyes. If damage is very localized, the RNFL Profile graph may dip into the abnormal area only briefly. This may reflect early, focal damage that may be missed by global analyses (even MRA). Look for localized dips into the abnormal region to indicate early loss. Also, symmetry between the eyes is important. Even if both eyes are within the normal range, a large asymmetry can indicate early damage. The inter-eye symmetry parameter provides a quantitative assessment of the symmetry between eyes.

Ethnic-Selectable Databases

The 3.0 software utilizes ethnic-specific databases to determine the normal range of healthy eyes. People of African descent as well as Hispanics have been found to be at greater risk for developing glaucoma, and some research suggests racial differences in the optic nerve exist, mainly associated with differences in optic disc size.

<table>
<thead>
<tr>
<th>Database</th>
<th>Number of Normal Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>&gt; 700</td>
</tr>
<tr>
<td>African Origin</td>
<td>&gt; 200</td>
</tr>
<tr>
<td>Indian (Southeast Asian)</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Hispanic</td>
<td>in process</td>
</tr>
<tr>
<td>Asian</td>
<td>in process</td>
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