

## Chapter 8. Conclusion

Over the years, there have been many studies demonstrating the diagnostic power of scanning laser polarimetry, even starting with the early versions.

The GDx NFA with fixed corneal compensation was found to accurately discriminate between glaucomatous and normal eyes<sup>82-91</sup>. Many studies reported sensitivities and specificities around 90% (e.g., Tjon-Fo-Sang and Lemij found 96% sensitivity and 93% specificity<sup>82</sup>, Sinai et al. found 94% sensitivity and 91% specificity<sup>83</sup>, and Poinosawmy et al. found 92% sensitivity and 96% specificity<sup>84</sup>).

Individualized corneal compensation employed by the GDx VCC significantly improves the discriminating power (over the GDx NFA with fixed corneal compensation), resulting in higher sensitivity and specificity<sup>76</sup>. A recent study by Reus and Lemij<sup>53</sup> reported a sensitivity and specificity of 89% and 98% respectively in a large, age-matched sample of normals and glaucoma patients. Other recent studies report similar results with the GDx VCC<sup>77,78</sup>. A study by Medeiros et al.<sup>54</sup> found that the GDx VCC discriminated between glaucoma and normal more accurately than did expert grading with red-free RNFL photographs.

In summary, the GDx VCC is an accurate and powerful diagnostic tool for RNFL assessment in glaucoma.

Glaucoma diagnosis in the past has generally relied on assessment of IOP, the optic disc, and visual fields. Although these measures provide useful clinical information, they are each limited in terms of their ability to accurately and reliably detect early glaucoma<sup>15,17-21,23-25,31-37</sup>.

RNFL assessment improves the clinician's ability to detect early glaucoma. RNFL damage occurs before visual field defects<sup>33-37</sup> and even before optic disc damage<sup>24,25,33,41-44</sup>.

Newer diagnostic tools such as the GDx VCC provide objective and quantitative information of the RNFL that is highly reproducible<sup>51,52</sup> and can discriminate normal from glaucoma with a high degree of accuracy<sup>53,54,60,76,77,78</sup>. Clinical interpretation of the results is simple and direct. The speed and ease of use of the GDx VCC provide many practical benefits as well. Overall, the excellent reproducibility, high diagnostic accuracy, simple interpretation and ease of use make the GDx VCC an ideal clinical tool for glaucoma diagnosis and management.

The GDx VCC provides valuable and unique RNFL information that cannot be obtained with

other diagnostic tools. This quantitative RNFL assessment aids the clinician in the diagnosis and management of glaucoma, and should be used in conjunction with other diagnostic information when making clinical decisions.

Glaucoma can be considered a puzzle. The results from the diagnostic tools are the pieces of the puzzle that form the glaucoma picture. Each case is a unique picture where the pieces are somewhat different, each adding in different ways for each individual. Without all the pieces, the picture is incomplete, making diagnosis and management of glaucoma difficult and prone to error. Most routine clinical exams provide many of these pieces, however RNFL assessment is frequently missing due to the difficult nature of directly observing RNFL defects. The GDx VCC provides the critical missing piece that helps the clinician solve the glaucoma puzzle.