



## Humphrey Field Analyzer from ZEISS

Compendium of peer-reviewed, published clinical articles





// INNOVATION  
MADE BY ZEISS

## Compendium of peer-reviewed, published clinical articles

### Methodology

This compendium is intended as an introduction to the breadth of research on or utilizing the Humphrey® Field Analyzer (HFA™). Since its first model was produced nearly 30 years ago, the Humphrey perimeter has been a part of research supporting hundreds of clinical articles, studies and trials.

With the goal of being as objective and inclusive as possible, the selection methodology used in developing this compendium was as follows: a search was conducted in Thomson-Reuters 'Web of Knowledge' databases for articles containing 'Humphrey Field Analyzer' or 'Humphrey Visual Field' or 'Statpac' in the title, keywords, or abstract, published between 1990 and 2013. In total, 1220 articles were identified. From these, articles were chosen based on number of citations and on current interest.

For a full bibliography on the HFA, as well as access to all articles and papers, visit [www.pubmed.com](http://www.pubmed.com).

ZEISS would like to thank Paul H. Artes, PhD, of the Open Perimetry Initiative and Dalhousie University for his distinguished work on this compendium.

# TABLE OF CONTENTS

<b>Analysis</b> .....	<b>4</b>
Glaucoma Hemifield Test (GHT)	
Guided Progression Analysis™ (GPA™)	
STATPAC™	
Total and Pattern Deviation Analysis & Probability Maps	
Visual Field Index™ (VFI™)	
Other	
<b>Disability &amp; Quality of Life (QOL)</b> .....	<b>6</b>
<b>Glaucoma</b> .....	<b>8</b>
<b>Neurology</b> .....	<b>12</b>
<b>Perimetric Testing and Strategies</b> .....	<b>12</b>
Swedish Interactive Thresholding Algorithm (SITA™)	
SITA Fast™	
SITA-SWAP™	
Other	
<b>Retina</b> .....	<b>18</b>
<b>Structure &amp; Function</b> .....	<b>20</b>
<b>Studies and Epidemiological Surveys</b> .....	<b>23</b>
Andhra Pradesh Eye Disease Study	
Baltimore Eye Survey	
Barbados Eye Study	
Leber Hereditary Optic Neuropathy	
Melbourne Visual Impairment Project	
Singapore Malay Eye Study	
Tajimi Study	
Other	
<b>Trials</b> .....	<b>24</b>
Advanced Glaucoma Intervention Study (AGIS)	
Collaborative Initial Glaucoma Treatment Study (CIGTS)	
Early Manifest Glaucoma Trial (EMGT)	
European Glaucoma Prevention Study (EGPS)	
Los Angeles Latino Eye Study (LALES)	
Low-Pressure Glaucoma Treatment Study (LoGTS)	
Ocular Hypertension Treatment Study (OHTS)	
Optic Neuritis Treatment Trial (ONTT)	

## Analysis

Asman P, Heijl A. [Glaucoma Hemifield Test. Automated Visual-Field Evaluation.](#) *Arch Ophthalmol.* 1992 Jun;110(6):812-9.  
PubMed PMID: 1596230

Bengtsson B, Heijl A. [A visual field index for calculation of glaucoma rate of progression.](#) *Am J Ophthalmol.* 2008 Feb;145(2):343-53.  
PubMed PMID: 18078852

Bengtsson B, Heijl A. [False-negative responses in glaucoma perimetry: Indicators of patient performance or test reliability?](#) *Invest Ophthalmol Vis Sci.* 2000 Jul;41(8):2201-4.  
PubMed PMID: 10892863

Bengtsson B, Lindgren A, Heijl A, Lindgren G, Asman P, Patella M. [Perimetric probability maps to separate change caused by glaucoma from that caused by cataract.](#) *Acta Ophthalmol Scand.* 1997 Apr;75(2):184-8.  
PubMed PMID: 9197570

Bengtsson B, Patella VM, Heijl A. [Prediction of glaucomatous visual field loss by extrapolation of linear trends.](#) *Arch Ophthalmol.* 2009 Dec;127(12):1610-5.  
PubMed PMID: 20008716

Chauhan BC, Garway-Heath DF, Goñi FJ, Rossetti L, Bengtsson B, Viswanathan AC, Heijl A. [Practical recommendations for measuring rates of visual field change in glaucoma.](#) *Br J Ophthalmol.* 2008 Apr;92(4):569-73.  
PubMed PMID: 18211935

Chauhan BC, Johnson CA. [Test-retest variability of frequency-doubling perimetry and conventional perimetry in glaucoma patients and normal subjects.](#) *Invest Ophthalmol Vis Sci.* 1999 Mar;40(3):648-56.  
PubMed PMID: 10067968

Fitzke FW, Hitchings RA, Poinosawmy D, McNaught AI, Crabb DP. [Analysis of visual field progression in glaucoma.](#) *Br J Ophthalmol.* 1996 Jan;80(1):40-8.  
PubMed PMID: 8664231

Goldbaum MH, Sample PA, Chan KL, Williams J, Lee TW, Blumenthal E, et al. [Comparing machine learning classifiers for diagnosing glaucoma from standard automated perimetry.](#) *Invest Ophthalmol Vis Sci.* 2002 Jan;43(1):162-9.  
PubMed PMID: 11773027

Heijl A, Bengtsson B. [The effect of perimetric experience in patients with glaucoma.](#) *Arch Ophthalmol.* 1996 Jan;114(1):19-22.  
PubMed PMID: 8540846

Heijl A, Bengtsson B, Chauhan BC, Lieberman MF, Cunliffe I, Hyman L, Leske MC. [A comparison of visual field progression criteria of 3 major glaucoma trials in early manifest glaucoma trial patients.](#) *Ophthalmology*. 2008 Sep;115(9):1557-65.  
PubMed PMID: 18378317

Heijl A, Bengtsson B, Patella VM. [Glaucoma follow-up when converting from long to short perimetric threshold tests.](#) *Arch Ophthalmol*. 2000 Apr;118(4):489-93.  
PubMed PMID: 10766134

Heijl A, Leske MC, Bengtsson B, Bengtsson B, Hussein M, Early Manifest Glaucoma Trial Group. [Measuring visual field progression in the Early Manifest Glaucoma Trial.](#) *Acta Ophthalmol Scand*. 2003 Jun;81(3):286-93.  
PubMed PMID: 12780410

Heijl A, Lindgren G, Lindgren A, Olsson J, Asman P, Myers S, et al. [Extended Empirical Statistical Package for Evaluation of Single and Multiple Fields in Glaucoma - Statpac-2.](#) *Perimetry Update*. 1990/1991. 1991:303-15.  
PubMed PMID: N/A

Katz J, Sommer A, Gaasterland DE, Anderson DR. [Comparison of analytic algorithms for detecting glaucomatous visual field loss.](#) *Arch Ophthalmol*. 1991 Dec;109(12):1684-9.  
PubMed PMID: 1841576

Katz J, Sommer A, Witt K. [Reliability of visual field results over repeated testing.](#) *Ophthalmology*. 1991 Jan;98(1):70-5.  
PubMed PMID: 2023736

Lam BL, Alward WLM, Kolder HE. [Effect of cataract on automated perimetry.](#) *Ophthalmology*. 1991 Jul;98(7):1066-70.  
PubMed PMID: 1891215

McNaught AI, Crabb DP, Fitzke FW, Hitchings RA. [Visual field progression: comparison of Humphrey Statpac2 and pointwise linear regression analysis.](#) *Graefes Arch Clin Exp Ophthalmol*. 1996 Jul;234(7):411-8.  
PubMed PMID: 8817283

Rossetti L, Goni F, Denis P, Bengtsson B, Martinez A, Heijl A. [Focusing on glaucoma progression and the clinical importance of progression rate measurement: a review.](#) *Eye (Lond)*. 2010 Oct;24 Suppl 1:S1-7.  
PubMed PMID: 20944656

Searle AET, Wild JM, Shaw DE, Oneill EC. [Time-related variation in normal automated static perimetry.](#) *Ophthalmology*. 1991 May;98(5):701-7.  
PubMed PMID: 2062504

Viswanathan AC, Fitzke FW, Hitchings RA. [Early detection of visual field progression in glaucoma: a comparison of PROGRESSOR and STATPAC 2.](#) *Br J Ophthalmol.* 1997 Dec;81(12):1037-42.

PubMed PMID: 9497460

Wild JM, Hutchings N, Hussey MK, Flanagan JG, Trope GE. [Pointwise univariate linear regression of perimetric sensitivity against follow-up time in glaucoma.](#) *Ophthalmology.* 1997 May;104(5):808-15.

PubMed PMID: 9160027

Wild JM, Moss ID, Whitaker D, Oneill EC. [The statistical interpretation of blue-on-yellow visual-field loss.](#) *Invest Ophthalmol Vis Sci.* 1995 Jun;36(7):1398-410.

PubMed PMID: 7775118

## Disability & Quality of Life (QOL)

Balcer LJ, Baier ML, Cohen JA, Kooijmans MF, Sandrock AW, Nano-Schiavi ML, et al. [Contrast letter acuity as a visual component for the Multiple Sclerosis Functional Composite.](#) *Neurology.*

2003 Nov 25;61(10):1367-73.

PubMed PMID: 14638957

Cameron BD, Saffra NA, Strominger MB. [Laser in situ keratomileusis-induced optic neuropathy.](#) *Ophthalmology.* 2001 Apr;108(4):660-5.

PubMed PMID: 11297479

Crabb DP, Viswanathan AC. [Integrated visual fields: a new approach to measuring the binocular field of view and visual disability.](#) *Graefes Arc Clin Exp Ophthalmol.* 2005 Mar;243(3):210-6.

PubMed PMID: 15806374

Gutierrez P, Wilson MR, Johnson CA, Gordon M, Cioffi GA, Ritch R, et al. [Influence of glaucomatous visual field loss on health-related quality of life.](#) *Arch Ophthalmol.* 1997 Jun;115(6):777-84.

PubMed PMID: 9194730

Harding GFA, Wild JM, Robertson KA, Lawden MC, Betts TA, Barber C, et al. [Electro-oculography, electroretinography, visual evoked potentials, and multifocal electroretinography in patients with vigabatrin-attributed visual field constriction.](#) *Epilepsia.* 2000 Nov;41(11):1420-31.

PubMed PMID: 11077455

Hudson C, Flanagan JG, Turner GS, Chen HC, Young LB, McLeod D. [Short-wavelength sensitive visual field loss in patients with clinically significant diabetic macular oedema.](#) *Diabetologia.*

1998 Aug;41(8):918-28.

PubMed PMID: 9726594

Lawden MC, Eke T, Degg C, Harding GFA, Wild JM. [Visual field defects associated with vigabatrin therapy](#). *J Neurol Neurosurg Psychiatry*. 1999 Dec;67(6):716-22.  
PubMed PMID: 10567485

Manuchehri K, Goodman S, Siviter L, Nightingale S. [A controlled study of vigabatrin and visual abnormalities](#). *Br J Ophthalmol*. 2000 May;84(5):499-505.  
PubMed PMID: 10781514

McKean-Cowdin R, Varma R, Wu J, Hays RD, Azen SP. [Severity of visual field loss and health-related quality of life](#). *Am J Ophthalmol*. 2007 Jun;143(6):1013-23.  
PubMed PMID: 17399676

Rubin GS, West SK, Munoz B, Bandeen-Roche K, Zeger S, Schein O, et al. [A comprehensive assessment of visual impairment in a population of older Americans. The SEE Study. Salisbury Eye Evaluation Project](#). *Invest Ophthalmol Vis Sci*. 1997 Mar;38(3):557-68.  
PubMed PMID: 9071208

Turano KA, Broman AT, Bandeen-Roche K, Munoz B, Rubin GS, West SK, et al. [Association of visual field loss and mobility performance in older adults: Salisbury Eye Evaluation Study](#). *Opt Vis Sci*. 2004 May;81(5):298-307.  
PubMed PMID: 15181354

Turano KA, Rubin GS, Quigley HA. [Mobility performance in glaucoma](#). *Invest Ophthalmol Vis Sci*. 1999 Nov;40(12):2803-9.  
PubMed PMID: 10549639

Wood JM, Troutbeck R. [Elderly drivers and simulated visual impairment](#). *Optom Vis Sci*. 1995 Feb;72(2):115-24.  
PubMed PMID: 7753525

# Glaucoma

Araie M, Yamagami J, Suzuki Y. [Visual field defects in normal-tension and high-tension glaucoma.](#) *Ophthalmology.* 1993 Dec;100(12):1808-14.  
PubMed PMID: 8259278

Bhandari A, Crabb DP, Poinoosawmy D, Fitzke FW, Hitchings RA, Nouredin BN. [Effect of surgery on visual field progression in normal-tension glaucoma.](#) *Ophthalmology.* 1997 Jul;104(7):1131-7.  
PubMed PMID: 9224466

Broman AT, Quigley HA, West SK, Katz J, Munoz B, Bandeen-Roche K, et al. [Estimating the rate of progressive visual field damage in those with open-angle glaucoma, from cross-sectional data.](#) *Invest Ophthalmol Vis Sci.* 2008 Jan;49(1):66-76.  
PubMed PMID: 18172076

Chauhan BC, Tompkins JD, Leblanc RP, McCormick TA. [Characteristics of frequency-of-seeing curves in normal subjects, patients with suspected glaucoma, and patients with glaucoma.](#) *Invest Ophthalmol Vis Sci.* 1993 Dec;34(13):3534-40.  
PubMed PMID: 8258511

Chen PP, Park RJ. [Visual field progression in patients with initially unilateral visual field loss from chronic open-angle glaucoma.](#) *Ophthalmology.* 2000 Sep;107(9):1688-92.  
PubMed PMID: 10964831

Choi J, Kim KH, Jeong J, Cho HS, Lee CH, Kook MS. [Circadian fluctuation of mean ocular perfusion pressure is a consistent risk factor for normal-tension glaucoma.](#) *Invest Ophthalmol Vis Sci.* 2007 Jan;48(1):104-11.  
PubMed PMID: 17197523

Coleman AL, Miglior S. [Risk factors for glaucoma onset and progression.](#) *Surv Ophthalmology.* 2008 Nov;53:S3-S10.  
PubMed PMID: 19038621

Coleman AL, Quigley HA, Vitale S, Dunkelberger G. [Displacement of the optic nerve head by acute changes in intraocular-pressure in monkey eyes.](#) *Ophthalmology.* 1991 Jan;98(1):35-40.  
PubMed PMID: 2023730

Colotto A, Falsini B, Salgarello T, Iarossi G, Galan ME, Scullica L. [Photopic negative response of the human ERG: losses associated with glaucomatous damage.](#) *Invest Ophthalmol Vis Sci.* 2000 Jul;41(8):2205-11.  
PubMed PMID: 10892864

Findl O, Rainer G, Dallinger S, Dorner G, Polak K, Kiss B, et al. [Assessment of optic disk blood flow in patients with open-angle glaucoma.](#) *Am J Ophthalmol.* 2000 Nov;130(5):589-96.  
PubMed PMID: 11078837



Geyer O, Cohen N, Segev E, Rath EZ, Melamud L, Peled R, et al. [The prevalence of glaucoma in patients with sleep apnea syndrome: same as in the general population.](#) *Am J Ophthalmol.* 2003 Dec;136(6):1093-6.  
PubMed PMID: 14644220

Graham SL, Drance SM, Chauhan BC, Swindale NV, Hnik P, Mikelberg FS, et al. [Comparison of psychophysical and electrophysiological testing in early glaucoma.](#) *Invest Ophthalmol Vis Sci.* 1996 Dec;37(13):2651-62.  
PubMed PMID: 8977479

Graham SL, Drance SM, Wijsman K, Douglas GR, Mikelberg FS. [Ambulatory blood pressure monitoring in glaucoma. The nocturnal dip.](#) *Ophthalmology.* 1995 Jan;102(1):61-9.  
PubMed PMID: 7831043

Grodum K, Heijl A, Bengtsson B. [Refractive error and glaucoma.](#) *Acta Ophthalmol Scand.* 2001 Dec;79(6):560-6.  
PubMed PMID: 11782219

Grunwald JE, Piltz J, Hariprasad SM, DuPont J. [Optic nerve and choroidal circulation in glaucoma.](#) *Invest Ophthalmol Vis Sci.* 1998 Nov;39(12):2329-36.  
PubMed PMID: 9804141

Harwerth RS, Smith EL, DeSantis L. [Experimental glaucoma: perimetric field defects and intraocular pressure.](#) *J Glaucoma.* 1997 Dec;6(6):390-401.  
PubMed PMID: 9407368

Hasegawa S, Takagi M, Usui T, Takada R, Abe H. [Waveform changes of the first-order multifocal electroretinogram in patients with glaucoma.](#) *Invest Ophthalmol Vis Sci.* 2000 May;41(6):1597-603.  
PubMed PMID: 10798681

Heijl A, Buchholz P, Norrgren G, Bengtsson B. [Rates of visual field progression in clinical glaucoma care.](#) *Acta Ophthalmol.* 2013 Aug;91(5):406-12.  
PubMed PMID: 23066646

Henson DB, Artes PH, Chauhan BC. [Diffuse loss of sensitivity in early glaucoma.](#) *Invest Ophthalmol Vis Sci.* 1999 Dec;40(13):3147-51.  
PubMed PMID: 10586936

Hood DC, Greenstein VC. [Multifocal VEP and ganglion cell damage: applications and limitations for the study of glaucoma.](#) *Prog Retin Eye Res.* 2003 Mar;22(2):201-51.  
PubMed PMID: 12604058

Hood DC, Greenstein VC, Holopigian K, Bauer R, Firoz B, Liebmann JM, et al. [An attempt to detect glaucomatous damage to the inner retina with the multifocal ERG](#). *Invest Ophthalmol Vis Sci*. 2000 May;41(6):1570-9.  
PubMed PMID: 10798678

Hood DC, Xu L, Thienprasiddhi P, Greenstein VC, Odel JG, Grippo TM, et al. [The pattern electroretinogram in glaucoma patients with confirmed visual field deficits](#). *Invest Ophthalmol Vis Sci*. 2005 Jul;46(7):2411-8.  
PubMed PMID: 15980229

Katz J, Congdon N, Friedman DS. [Methodological variations in estimating apparent progressive visual field loss in clinical trials of glaucoma treatment](#). *Arch Ophthalmol*. 1999 Sep;117(9):1137-42.  
PubMed PMID: 10496384

Katz J, Gilbert D, Quigley HA, Sommer A. [Estimating progression of visual field loss in glaucoma](#). *Ophthalmology*. 1997 Jun;104(6):1017-25.  
PubMed PMID: 9186444

Klistorner A, Graham SL. [Objective perimetry in glaucoma](#). *Ophthalmology*. 2000 Dec;107(12):2283-99.  
PubMed PMID: 11097611

Lachkar Y, Neverauskiene J, Jeanteur-Lunel MN, Gracies H, Berkani M, Ecoffet M, et al. [Nonpenetrating deep sclerectomy: a 6-year retrospective study](#). *Eur J Ophthalmol*. 2004 Jan-Feb;14(1):26-36.  
PubMed PMID: 15005582

Lee BL, Gutierrez P, Gordon M, Wilson MR, Cioffi GA, Ritch R, et al. [The Glaucoma Symptom Scale. A brief index of glaucoma-specific symptoms](#). *Arch Ophthalmol*. 1998 Jul;116(7):861-6.  
PubMed PMID: 9682698

Migdal C, Gregory W, Hitchings R. [Long-term functional outcome after early surgery compared with laser and medicine in open-angle glaucoma](#). *Ophthalmology*. 1994 Oct;101(10):1651-6.  
PubMed PMID: 7936562

Mills RP, Budenz DL, Lee PP, Noecker RJ, Walt JG, Siegartel LR, et al. [Categorizing the stage of glaucoma from pre-diagnosis to end-stage disease](#). *Am J Ophthalmol*. 2006 Jan;141(1):24-30.  
PubMed PMID: 16386972

Noureddin BN, Poinosawmy D, Fietzke FW, Hitchings RA. [Regression analysis of visual-field progression in low tension glaucoma](#). *Br J Ophthalmol*. 1991 Aug;75(8):493-5.  
PubMed PMID: 1873271

Parrish RK, Gedde SJ, Scott IU, Feuer WJ, Schiffman JC, Mangione CM, et al. [Visual function and quality of life among patients with glaucoma](#). *Arch Ophthalmol*. 1997 Nov;115(11):1447-55.

PubMed PMID: 9366678

Poinoosawmy D, Fontana L, Wu JX, Bunce CV, Hitchings RA. [Frequency of asymmetric visual field defects in normal-tension and high-tension glaucoma](#). *Ophthalmology*. 1998 Jun;105(6):988-91.

PubMed PMID: 9627646

Sacca SC, Pascotto A, Camicione P, Capris P, Izzotti A. [Oxidative DNA damage in the human trabecular meshwork: clinical correlation in patients with primary open-angle glaucoma](#). *Arch Ophthalmol*.

2005 Apr;123(4):458-63.

PubMed PMID: 15824217

Sawada A, Kitazawa Y, Yamamoto T, Okabe I, Ichien K. [Prevention of visual field defect progression with brovincamine in eyes with normal-tension glaucoma](#). *Ophthalmology*. 1996 Feb;103(2):283-8.

PubMed PMID: 8594515

Smith SD, Katz J, Quigley HA. [Effect of cataract extraction on the results of automated perimetry in glaucoma](#). *Arch Ophthalmol*. 1997 Dec;115(12):1515-9.

PubMed PMID: 9400784

Tokunaga T, Kashiwagi K, Tsumura T, Taguchi K, Tsukahara S. [Association between nocturnal blood pressure reduction and progression of visual field defect in patients with primary open-angle glaucoma or normal-tension glaucoma](#). *Jpn J Ophthalmol*. 2004 Jul-Aug;48(4):380-5.

PubMed PMID: 15295667

Tsai CS, Shin DH, Wan JY, Zeiter JH. [Visual field global indexes in patients with reversal of glaucomatous cupping after intraocular-pressure reduction](#). *Ophthalmology*. 1991 Sep;98(9):1412-9.

PubMed PMID: 1945318

Viswanathan S, Frishman LJ, Robson JG, Walters JW. [The photopic negative response of the flash electroretinogram in primary open angle glaucoma](#). *Invest Ophthalmol Vis Sci*. 2001 Feb;42(2):514-22.

PubMed PMID: 11157891

Wall M, Ketoff KM. [Random dot motion perimetry in patients with glaucoma and in normal subjects](#). *Am J Ophthalmol*. 1995 Nov;120(5):587-96.

PubMed PMID: 7485360

Wilson MR, Kosoko O, Cowan CL, Sample PA, Johnson CA, Haynatzki G, et al. [Progression of visual field loss in untreated glaucoma patients and glaucoma suspects in St. Lucia, West Indies](#). *Am J Ophthalmol*. 2002 Sep;134(3):399-405.

PubMed PMID: 12208252

## Neurology

Kelman SE, Elman MJ. [Optic nerve sheath decompression for nonarteritic ischemic optic neuropathy improves multiple visual function measurements.](#) *Arch Ophthalmol.* 1991 May;109(5):667-71.  
PubMed PMID: 2025169

Hood DC, Zhang X, Greenstein C, Kangovi S, Odel JG, Liebmann JM, et al. [An interocular comparison of the multifocal VEP: a possible technique for detecting local damage to the optic nerve.](#) *Invest Ophthalmol Vis Sci.* 2000 May;41(6):1580-7.  
PubMed PMID: 10798679

Hughes TS, Abou-Khalil B, Lavin PJM, Fakhoury T, Blumenkopf B, Donahue SP. [Visual field defects after temporal lobe resection - a prospective quantitative analysis.](#) *Neurology.* 1999 Jul 13;53(1):167-72.  
PubMed PMID: 10408554

Rowe FJ, Sarkies NJ. [Assessment of visual function in idiopathic intracranial hypertension: a prospective study.](#) *Eye (Lond).* 1998 Feb;12:111-8.  
PubMed PMID: 9614526

Spoor TC, Mchenry JG. [Long-term effectiveness of optic nerve sheath decompression for pseudotumor cerebri.](#) *Arch Ophthalmol.* 1993 May;111(5):632-5.  
PubMed PMID: 8489443

Wakakura M, Yokoe J. [Evidence for preserved direct pupillary light response in Leber's hereditary optic neuropathy.](#) *Br J Ophthalmol.* 1995 May;79(5):442-6.  
PubMed PMID: 7612556

Wall M, White WN. [Asymmetric papilledema in idiopathic intracranial hypertension: prospective interocular comparison of sensory visual function.](#) *Invest Ophthalmol Vis Sci.* 1998 Jan;39(1):134-42.  
PubMed PMID: 9430554

## Perimetric Testing and Strategies

Artes PH, Hutchison DM, Nicoleta MT, LeBlanc RP, Chauhan BC. [Threshold and variability properties of matrix frequency-doubling technology and standard automated perimetry in glaucoma.](#) *Invest Ophthalmol Vis Sci.* 2005 Jul;46(7):2451-7.  
PubMed PMID: 15980235

Artes PH, Iwase A, Ohno Y, Kitazawa Y, Chauhan BC. [Properties of perimetric threshold estimates from Full Threshold, SITA Standard, and SITA Fast strategies.](#) *Invest Ophthalmol Vis Sci.* 2002 Aug;43(8):2654-9.  
PubMed PMID: 12147599

Beck RW, Bergstrom TJ, Lichter PR. A clinical comparison of visual field testing with a new automated perimeter, the Humphrey Field Analyzer, and the Goldmann perimeter. *Ophthalmology*. 1985;92(1):77-82.  
PubMed PMID: 3974997

Bengtsson B, Heijl A. Comparing significance and magnitude of glaucomatous visual field defects using the SITA and Full Threshold strategies. *Acta Ophthalmol Scand*. 1999 Apr;77(2):143-6.  
PubMed PMID: 10321527

Bengtsson B, Heijl A. Evaluation of a new perimetric threshold strategy, SITA, in patients with manifest and suspect glaucoma. *Acta Ophthalmol Scand*. 1998 Jun;76(3):268-72.  
PubMed PMID: 9686835

Bengtsson B, Heijl A. Inter-subject variability and normal limits of the SITA Standard, SITA Fast, and the Humphrey Full Threshold computerized perimetry strategies, SITA STATPAC. *Acta Ophthalmol Scand*. 1999 Apr;77(2):125-9.  
PubMed PMID: 10321523

Bengtsson B, Heijl A. SITA Fast, a new rapid perimetric threshold test. Description of methods and evaluation in patients with manifest and suspect glaucoma. *Acta Ophthalmol Scand*. 1998 Aug;76(4):431-7.  
PubMed PMID: 9716329

Bengtsson B, Heijl A, Olsson J. Evaluation of a new threshold visual field strategy, SITA, in normal subjects. Swedish Interactive Thresholding Algorithm. *Acta Ophthalmol Scand*. 1998 Apr;76(2):165-9.  
PubMed PMID: 9591946

Bengtsson B, Olsson J, Heijl A, Rootzen H. A new generation of algorithms for computerized threshold perimetry, SITA. *Acta Ophthalmol Scand*. 1997 Aug;75(4):368-75.  
PubMed PMID: 9374242

Birch MK, Wishart PK, Odonnell NP. Determining progressive visual field loss in serial Humphrey visual fields. *Ophthalmology*. 1995 Aug;102(8):1227-34.  
PubMed PMID: 9097752

Bjerre A, Grigg JR, Parry NRA, Henson DB. Test-retest variability of multifocal visual evoked potential and SITA standard perimetry in glaucoma. *Invest Ophthalmol Vis Sci*. 2004 Nov;45(11):4035-40.  
PubMed PMID: 15505053

Blumenthal EZ, Sample PA, Zangwill L, Lee AC, Kono Y, Weinreb RN. Comparison of long-term variability for standard and short-wavelength automated perimetry in stable glaucoma patients. *Am J Ophthalmol*. 2000 Mar;129(3):309-13.  
PubMed PMID: 10704545

Brenton RS, Phelps CD. [The normal visual field on the Humphrey field analyzer.](#) *Ophthalmologica*. 1986;193(1-2):56-74.  
PubMed PMID: 3822395

Burnstein Y, Elish NJ, Magbalon M, Higginbotham EJ. [Comparison of frequency doubling perimetry with Humphrey visual field analysis in a glaucoma practice.](#) *Am J Ophthalmol*. 2000 Mar;129(3):328-33.  
PubMed PMID: 10704548

Casson R, James B, Rubinstein A, Ali H. [Clinical comparison of frequency doubling technology perimetry and Humphrey perimetry.](#) *Br J Ophthalmol*. 2001 Mar;85(3):360-2.  
PubMed PMID: 11222348

Chan KL, Lee TW, Sample P, Goldbaum MH, Weinreb RN, Sejnowski ATJ. [Comparison of machine learning and traditional classifiers in glaucoma diagnosis.](#) *IEEE Trans Biomed Eng*. 2002 Sep;49(9):963-74.  
PubMed PMID: 12214886

Chauhan BC, House PH, McCormick TA, LeBlanc RP. [Comparison of conventional and high-pass resolution perimetry in a prospective study of patients with glaucoma and healthy controls.](#) *Arch Ophthalmol*. 1999 Jan;117(1):24-33.  
PubMed PMID: 9930157

Fitzke FW, Crabb DP, Mcnaught AI, Edgar DF, Hitchings RA. [Image processing of computerized visual field data.](#) *Br J Ophthalmol*. 1995 Mar;79(3):207-12.  
PubMed PMID: 7703195

Flanagan JG, Moss ID, Wild JM, Hudson C, Prokopich L, Whitaker D, et al. [Evaluation of Fastpac : a new strategy for threshold estimation with the Humphrey Field Analyzer.](#) *Graefes Arch Clin Exp Ophthalmol*. 1993 Aug;231(8):465-9.  
PubMed PMID: 8224946

Goldberg I, Graham SL, Klistorner AI. [Multifocal objective perimetry in the detection of glaucomatous field loss.](#) *Am J Ophthalmol*. 2002 Jan;133(1):29-39.  
PubMed PMID: 11755837

Graham SL, Klistorner AI, Goldberg I. [Clinical application of objective perimetry using multifocal visual evoked potentials in glaucoma practice.](#) *Arch Ophthalmol*. 2005 Jun;123(6):729-39.  
PubMed PMID: 15955974

Harwerth RS, Smith EL, Desantis L. [Behavioral perimetry in monkeys.](#) *Invest Ophthalmol Vis Sci*. 1993 Jan;34(1):31-40.  
PubMed PMID: 8425837

Hood DC, Greenstein VC, Odel JG, Zhang X, Ritch R, Liebmann JM, et al. [Visual field defects and multifocal visual evoked potentials: evidence of a linear relationship.](#) *Arch Ophthalmol.* 2002 Dec;120(12):1672-81.  
PubMed PMID: 12470141

Hood DC, Thienprasiddhi P, Greenstein VC, Winn BJ, Ohri N, Liebmann JM, et al. [Detecting early to mild glaucomatous damage: a comparison of the multifocal VEP and automated perimetry.](#) *Invest Ophthalmol Vis Sci.* 2004 Feb;45(2):492-8.  
PubMed PMID: 14744890

Hood DC, Zhang X, Winn BJ. [Detecting glaucomatous damage with multifocal visual evoked potentials: how can a monocular test work?](#) *J Glaucoma.* 2003 Feb;12(1):3-15.  
PubMed PMID: 12567104

Johnson CA, Adams AJ, Casson EJ, Brandt JD. [Blue-on-yellow perimetry can predict the development of glaucomatous visual field loss.](#) *Archives of Ophthalmology.* 1993 May;111(5):645-50.  
PubMed PMID: 8489447

Johnson CA, Adams AJ, Casson EJ, Brandt JD. [Progression of early glaucomatous visual-field loss as detected by blue-on-yellow and standard white-on-white automated perimetry.](#) *Arch Ophthalmol.* 1993 May;111(5):651-6.  
PubMed PMID: 8489448

Johnson CA, Brandt JD, Khong AM, Adams AJ. [Short-wavelength automated perimetry in low-, medium-, and high-risk ocular hypertensive eyes. Initial baseline results.](#) *Arch Ophthalmol.* 1995 Jan;113(1):70-6.  
PubMed PMID: 7826296

Kardon RH, Kirkali PA, Thompson HS. [Automated pupil perimetry. Pupil field mapping in patients and normal subjects.](#) *Ophthalmology.* 1991 Apr;98(4):485-96.  
PubMed PMID: 2052302

Katz J. [Scoring systems for measuring progression of visual field loss in clinical trials of glaucoma treatment.](#) *Ophthalmology.* 1999 Feb;106(2):391-5.  
PubMed PMID: 9951496

Katz J, Tielsch JM, Quigley HA, Sommer A. [Automated perimetry detects visual field loss before manual Goldmann perimetry.](#) *Ophthalmology.* 1995 Jan;102(1):21-6.  
PubMed PMID: 7831036

Klistorner AI, Graham SL, Grigg JR, Billson FA. [Multifocal topographic visual evoked potential: improving objective detection of local visual field defects.](#) *Invest Ophthalmol Vis Sci.* 1998 May;39(6):937-50.  
PubMed PMID: 9579473

Kondo Y, Yamamoto T, Sato Y, Matsubara M, Kitazawa Y. [A frequency-doubling perimetric study in normal-tension glaucoma with hemifield defect.](#) *J Glaucoma.* 1998 Aug; 7(4):261-5.

PubMed PMID: 9713784

Kwon YH, Park HJ, Jap A, Ugurlu S, Caprioli J. [Test-retest variability of blue-on-yellow perimetry is greater than white-on-white perimetry in normal subjects.](#) *Am J Ophthalmol.* 1998 Jul;126(1):29-36.

PubMed PMID: 9683146

McKendrick AM, Cioffi GA, Johnson CA. [Short-wavelength sensitivity deficits in patients with migraine.](#) *Arch Ophthalmol.* 2002 Feb;120(2):154-61.

PubMed PMID: 11831917

McNaught AI, Crabb DP, Fitzke FW, Hitchings RA. [Modelling series of visual fields to detect progression in normal-tension glaucoma.](#) *Graefes Arch Clin Exp Ophthalmol.* 1995 Dec;233(12):750-5.

PubMed PMID: 8626082

Moss ID, Wild JM, Whitaker DJ. [The influence of age-related cataract on blue-on-yellow perimetry.](#) *Invest Ophthalmol Vis Sci.* 1995 Apr;36(5):764-73.

PubMed PMID: 7706024

Nelson-Quigg JM, Cello K, Johnson CA. [Predicting binocular visual field sensitivity from monocular visual field results.](#) *Invest Ophthalmol Vis Sci.* 2000 Jul;41(8):2212-21.

PubMed PMID: 10892865

Parisi V, Miglior S, Manni G, Centofanti M, Bucci MG. [Clinical ability of pattern electroretinograms and visual evoked potentials in detecting visual dysfunction in ocular hypertension and glaucoma.](#) *Ophthalmology.* 2006 Feb;113(2):216-28.

PubMed PMID:16406535

Quigley HA. [Identification of glaucoma-related visual field abnormality with the screening protocol of frequency doubling technology.](#) *Am J Ophthalmol.* 1998 Jun;125(6):819-29.

PubMed PMID: 9645719

Remky A, Arend O, Hendricks S. [Short-wavelength automated perimetry and capillary density in early diabetic maculopathy.](#) *Invest Ophthalmol Vis Sci.* 2000 Jan;41(1):274-81.

PubMed PMID: 10634631

Sekhar GC, Naduvilath TJ, Lakkai M, Jayakumar AJ, Pandi GT, Mandal AK, et al. [Sensitivity of Swedish interactive threshold algorithm compared with standard full threshold algorithm in Humphrey visual field testing.](#) *Ophthalmology.* 2000 Jul;107(7):1303-8.

PubMed PMID: 10889102



Sharma AK, Goldberg I, Graham SL, Mohsin M. [Comparison of the Humphrey swedish interactive thresholding algorithm \(SITA\) and full threshold strategies.](#) *J Glaucoma.* 2000 Feb;9(1):20-7.

PubMed PMID: 10708227

Sponsel WE, Arango S, Trigo Y, Mensah J. [Clinical classification of glaucomatous visual field loss by frequency doubling perimetry.](#) *Am J Ophthalmol.* 1998 Jun;125(6):830-6.

PubMed PMID: 9645720

Sponsel WE, Ritch R, Stamper R, Higginbotham E, Anderson DR, Wilson MR, et al. [Prevent Blindness America visual field screening study. The Prevent Blindness America Glaucoma Advisory Committee.](#) *Am J Ophthalmol.* 1995 Dec;120(6):699-708.

PubMed PMID: 8540543

Teesalu P, Vihanninjoki K, Airaksinen PJ, Tuulonen A, Laara E. [Correlation of blue-on-yellow visual fields with scanning confocal laser optic disc measurements.](#) *Invest Ophthalmol Vis Sci.*

1997 Nov;38(12):2452-9.

PubMed PMID: 9375562

Trible JR, Schultz RO, Robinson JC, Rothe TL. [Accuracy of glaucoma detection with frequency-doubling perimetry.](#) *Am J Ophthalmol.* 2000 Jun;129(6):740-5.

PubMed PMID: 10926982

Vesti E, Johnson CA, Chauhan BC. [Comparison of different methods for detecting glaucomatous visual field progression.](#) *Invest Ophthalmol Vis Sci.* 2003 Sep;44(9):3873-9.

PubMed PMID: 12939303

Wadood AC, Azuara-Blanco A, Aspinall P, Taguri A, King AJW. [Sensitivity and specificity of frequency-doubling technology, tendency-oriented perimetry, and Humphrey Swedish interactive threshold algorithm-fast perimetry in a glaucoma practice.](#) *Am J Ophthalmol.* 2002 Mar;133(3):327-32.

PubMed PMID: 11860968

Wall M, Johnson CA, Kutzko KE, Nguyen R, Brito C, Keltner JL. [Long- and short-term variability of automated perimetry results in patients with optic neuritis and healthy subjects.](#) *Arch Ophthalmol.*

1998 Jan;116(1):53-61.

PubMed PMID: 9445208

Wall M, Kutzko KE, Chauhan BC. [Variability in patients with glaucomatous visual field damage is reduced using size V stimuli.](#) *Invest Ophthalmol Vis Sci.* 1997 Feb;38(2):426-35.

PubMed PMID: 9040476

Wild JM, Cubbidge RP, Pacey IE, Robinson R. [Statistical aspects of the normal visual field in short-wavelength automated perimetry.](#) *Invest Ophthalmol Vis Sci.* 1998 Jan;39(1):54-63.

PubMed PMID: 9430545

Wild JM, Pacey IE, Hancock SA, Cunliffe IA. [Between-algorithm, between-individual differences in normal perimetric sensitivity: full threshold, FASTPAC, and SITA. Swedish Interactive Threshold algorithm.](#) *Invest Ophthalmol Vis Sci.* 1999 May;40(6):1152-61.

PubMed PMID: 10235548

Wild JM, Pacey IE, O'Neill EC, Cunliffe IA. [The SITA perimetric threshold algorithms in glaucoma.](#) *Invest Ophthalmol Vis Sci.* 1999 Aug;40(9):1998-2009.

PubMed PMID: 10440254

Wild JM, Searle AET, Denglercharles M, Oneill EC. [Long-term follow-up of baseline learning and fatigue effects in the automated perimetry of glaucoma and ocular hypertensive patients.](#)

*Acta Ophthalmologica.* 1991 Apr;69(2):210-6.

PubMed PMID: 1872140

Yamada N, Chen PP, Mills RP, Leen MM, Lieberman MF, Stamper RL, et al. [Screening for glaucoma with frequency-doubling technology and Damato campimetry.](#) *Arch Ophthalmology.*

1999 Nov;117(11):1479-84.

PubMed PMID: 10565516

Yamada N, Chen PP, Mills RP, Leen MM, Stamper RL, Lieberman MF, et al. [Glaucoma screening using the scanning laser polarimeter.](#) *J Glaucoma.* 2000 Jun;9(3):254-61.

PubMed PMID: 10877377

## Retina

Agardh E, Stjernquist H, Heijl A, Bengtsson B. [Visual acuity and perimetry as measures of visual function in diabetic macular oedema.](#) *Diabetologia.* 2006 Jan;49(1):200-6. Epub 2005 Dec 10.

PubMed PMID: 16341838

Aiello LP, George DJ, Cahill MT, Wong JS, Cavallerano J, Hannah AL, et al. [Rapid and durable recovery of visual function in a patient with von hippel-lindau syndrome after systemic therapy with vascular endothelia growth factor receptor inhibitor su5416.](#) *Ophthalmology.* 2002 Sep;109(9):1745-51.

PubMed PMID: 12208726

Berson EL, Rosner B, Sandberg MA, Weigel-DiFranco C, Moser A, Brockhurst RJ, et al. [Further evaluation of docosahexaenoic acid in patients with retinitis pigmentosa receiving vitamin A treatment: subgroup analyses.](#) *Arch Ophthalmol.* 2004 Sep;122(9):1306-14.

PubMed PMID: 15364709

Berson EL, Rosner B, Sandberg MA, Weigel-DiFranco C, Moser A, Brockhurst RJ, et al. [Clinical trial of docosahexaenoic acid in patients with retinitis pigmentosa receiving vitamin A treatment.](#)

*Arch Ophthalmol.* 2004 Sep;122(9):1297-305.

PubMed PMID: 15364708

Hood DC, Holopigian K, Greenstein V, Seiple W, Li J, Sutter EE, et al. [Assessment of local retinal function in patients with retinitis pigmentosa using the multi-focal ERG technique.](#)

*Vision Res.* 1998 Jan;38(1):163-79.

PubMed PMID: 9474387

McDonagh J, Stephen LJ, Dolan FM, Parks S, Dutton GN, Kelly K, et al. [Peripheral retinal dysfunction in patients taking vigabatrin.](#)

*Neurology.* 2003 Dec 23;61(12):1690-4.

PubMed PMID: 14694031

Owsley C, Jackson GR, White M, Feist R, Edwards D. [Delays in rod-mediated dark adaptation in early age-related maculopathy.](#)

*Ophthalmology.* 2001 Jul;108(7):1196-202.

PubMed PMID: 11425675

Rosner B, Grove D. [Use of the Mann-Whitney U-test for clustered data.](#)

*Stat Med.* 1999 Jun 15;18(11):1387-400.

PubMed PMID: 10399203

Sandberg MA, Gaudio AR, Miller S, Weiner A. [Iris pigmentation and extent of disease in patients with neovascular age-related macular degeneration.](#)

*Invest Ophthalmol Vis Sci.* 1994 May;35(6):2734-40.

PubMed PMID: 7514581

Tolentino MJ, Miller S, Gaudio AR, Sandberg MA. [Visual field deficits in early age-related macular degeneration.](#)

*Vis Res.* 1994 Feb;34(3):409-13.

PubMed PMID: 8160376

Vajaranant TS, Seiple W, Szlyk JP, Fishman GA. [Detection using the multifocal electroretinogram of mosaic retinal dysfunction in carriers of X-linked retinitis pigmentosa.](#)

*Ophthalmology.* 2002 Mar;109(3):560-8.

PubMed PMID: 11874762

Vongphanit J, Mitchell P, Wang JJ. [Population prevalence of tilted optic disks and the relationship of this sign to refractive error.](#)

*Am J Ophthalmol.* 2002 May;133(5):679-85.

PubMed PMID: 11992866

Wild JM, Robson CR, Jones AL, Cunliffe IA, Smith PE. [Detecting vigabatrin toxicity by imaging of the retinal nerve fiber layer.](#)

*Invest Ophthalmol Vis Sci.* 2006 Mar;47(3):917-24.

PubMed PMID: 16505024

## Structure & Function

Bayer A, Harasymowycz P, Henderer JD, Steinmann WG, Spaeth GL. [Validity of a new disk grading scale for estimating glaucomatous damage: correlation with visual field damage.](#) *Am J Ophthalmol.*

2002 Jun;133(6):758-63.

PubMed PMID: 12036666

Bowd C, Tavares IM, Medeiros FA, Zangwill LM, Sample PA, Weinreb RN. [Retinal nerve fiber layer thickness and visual sensitivity using scanning laser polarimetry with variable and enhanced corneal compensation.](#) *Ophthalmology.* 2007 Jul;114(7):1259-65.

PubMed PMID: 17289147

Bowd C, Weinreb RN, Williams JM, Zangwill LM. [The retinal nerve fiber layer thickness in ocular hypertensive, normal, and glaucomatous eyes with optical coherence tomography.](#) *Arch Ophthalmol.*

2000 Jan;118(1):22-6.

PubMed PMID: 10636409

Brigatti L, Caprioli J. [Correlation of visual field with scanning confocal laser optic disc measurements in glaucoma.](#) *Arch Ophthalmol.* 1995 Sep;113(9):1191-4.

PubMed PMID: 7661755

Chauhan BC, McCormick TA, Nicolela MT, LeBlanc RP. [Optic disc and visual field changes in a prospective longitudinal study of patients with glaucoma: comparison of scanning laser tomography with conventional perimetry and optic disc photography.](#) *Arch Ophthalmol.* 2001 Oct;119(10):1492-9.

PubMed PMID: 11594950

Chen YY, Chen PP, Xu L, Ernst PK, Wang L, Mills RP. [Correlation of peripapillary nerve fiber layer thickness by scanning laser polarimetry with visual field defects in patients with glaucoma.](#) *J Glaucoma.*

1998 Oct;7(5):312-6.

PubMed PMID: 9786559

Danesh-Meyer HV, Carroll SC, Foroozan R, Savino PJ, Fan J, Jiang Y, et al. [Relationship between retinal nerve fiber layer and visual field sensitivity as measured by optical coherence tomography in chiasmal compression.](#) *Invest Ophthalmol Vis Sci.* 2006 Nov;47(11):4827-35.

PubMed PMID: 17065494

Garway-Heath DF, Caprioli J, Fitzke FW, Hitchings RA. [Scaling the hill of vision: the physiological relationship between light sensitivity and ganglion cell numbers.](#) *Invest Ophthalmol Vis Sci.*

2000 Jun;41(7):1774-82.

PubMed PMID: 10845598

Garway-Heath DF, Poinoosawmy D, Fitzke FW, Hitchings RA. [Mapping the visual field to the optic disc in normal tension glaucoma eyes.](#) *Ophthalmology.* 2000 Oct;107(10):1809-15.

PubMed PMID: 11013178

Harwerth RS, Vilupuru AS, Rangaswamy NV, Smith EL. [The relationship between nerve fiber layer and perimetry measurements](#). *Invest Ophthalmol Vis Sci*. 2007 Feb;48(2):763-73.

PubMed PMID: 17251476

lester M, Mikelberg FS, Courtright P, Drance SM. [Correlation between the visual field indices and Heidelberg retina tomograph parameters](#). *J Glaucoma*. 1997 Apr;6(2):78-82.

PubMed PMID: 9098814

lester M, Mikelberg FS, Drance SM. [The effect of optic disc size on diagnostic precision with the Heidelberg retina tomograph](#). *Ophthalmology*. 1997 Mar;104(3):545-8.

PubMed PMID: 9082287

lester M, Mikelberg FS, Swindale NV, Drance SM. [ROC analysis of Heidelberg Retina Tomograph optic disc shape measures in glaucoma](#). *Can J Ophthalmol*. 1997 Oct;32(6):382-8.

PubMed PMID: 9363342

Kamal DS, Garway-Heath DF, Hitchings RA, Fitzke FW. [Use of sequential Heidelberg retina tomograph images to identify changes at the optic disc in ocular hypertensive patients at risk of developing glaucoma](#). *Br J Ophthalmol*. 2000 Sep;84(9):993-8.

PubMed PMID: 10966952

Kerrigan-Baumrind LA, Quigley HA, Pease ME, Kerrigan DF, Mitchell RS. [Number of ganglion cells in glaucoma eyes compared with threshold visual field tests in the same persons](#). *Invest Ophthalmol Vis Sci*. 2000 Mar;41(3):741-8.

PubMed PMID: 10711689

Lederer DE, Schuman JS, Hertzmark E, Heltzer J, Velazques LJ, Fujimoto JG, et al. [Analysis of macular volume in normal and glaucomatous eyes using optical coherence tomography](#). *Am J Ophthalmol*. 2003 Jun;135(6):838-43.

PubMed PMID: 12788124

Leung CK, Chong KK, Chan WM, Yiu CK, Tso MY, Woo J, et al. [Comparative study of retinal nerve fiber layer measurement by StratusOCT and GDx VCC, II: structure /function regression analysis in glaucoma](#). *Invest Ophthalmol Vis Sci*. 2005 Oct;46(10):3702-11.

PubMed PMID: 16186352

Medeiros FA, Lisboa R, Weinreb RN, Girkin CA, Liebmann JM, Zangwill LM. [A combined index of structure and function for staging glaucomatous damage](#). *Arch Ophthalmol*. 2012 Sep;130(9):1107-16.

PubMed PMID: 23130365

Miglior S, Casula M, Guareschi M, Marchetti I, Iester M, Orzalesi N. [Clinical ability of Heidelberg retinal tomograph examination to detect glaucomatous visual field changes.](#) *Ophthalmology*. 2001 Sep;108(9):1621-7.  
PubMed PMID: 11535460

Miglior S, Guareschi M, Albe E, Gomasasca S, Vavassori M, Orzalesi N. [Detection of glaucomatous visual field changes using the Moorfields regression analysis of the Heidelberg Retina Tomograph.](#) *Am J Ophthalmol*. 2003 Jul;136(1):26-33.  
PubMed PMID: 12834666

Paczka JA, Friedman DS, Quigley HA, Barron Y, Vitale S. [Diagnostic capabilities of frequency-doubling technology, scanning laser polarimetry, and nerve fiber layer photographs to distinguish glaucomatous damage.](#) *Am J Ophthalmol*. 2001 Feb;131(2):188-97.  
PubMed PMID: 11228294

Pieroth L, Schuman JS, Hertzmark E, Hee MR, Wilkins JR, Coker J, et al. [Evaluation of focal defects of the nerve fiber layer using optical coherence tomography.](#) *Ophthalmology*. 1999 Mar;106(3):570-9.  
PubMed PMID: 10080216

Quigley HA. [Histopathology underlying glaucomatous damage - II.](#) *Glaucoma Diagnosis Structure and Function*. 2004:21-30.  
PubMed PMID: N/A

Reyes RD, Tomita G, Kitazawa Y. [Retinal nerve fiber layer thickness within the area of apparently normal visual field in normal-tension glaucoma with hemifield defect.](#) *J Glaucoma*. 1998 Oct;7(5):329-35.  
PubMed PMID: 9786562

Roh S, Noecker RJ, Schuman JS, Hedges TR, Weiter JJ, Mattox C. [Effect of optic nerve head drusen on nerve fiber layer thickness.](#) *Ophthalmology*. 1998 May;105(5):878-85.  
PubMed PMID: 9593392

Schuman JS, Hee MR, Puliafito CA, Wong C, Pedutkloizman T, Lin CP, et al. [Quantification of nerve fiber layer thickness in normal and glaucomatous eyes using optical coherence tomography.](#) *Arch Ophthalmol*. 1995 May;113(5):586-96.  
PubMed PMID: 7748128

Strouthidis NG, Scott A, Peter NM, Garway-Heath DF. [Optic disc and visual field progression in ocular hypertensive subjects: detection rates, specificity, and agreement.](#) *Invest Ophthalmol Vis Sci*. 2006 Jul;47(7):2904-10.  
PubMed PMID: 16799032

Tuulonen A, Lehtola J, Airaksinen PJ. [Nerve fiber layer defects with normal visual fields. Do normal optic disc and normal visual field indicate absence of glaucomatous abnormality?](#) *Ophthalmology*. 1993 May;100(5):587-98.  
PubMed PMID: 8493001

Wu LL, Suzuki Y, Kunimatsu S, Araie M, Iwase A, Tomita G. [Frequency doubling technology and confocal scanning ophthalmoscopic optic disc analysis in open-angle glaucoma with hemifield defects.](#) *J Glaucoma*. 2001 Aug;10(4):256-60.  
PubMed PMID: 11558807

## Studies and Epidemiological Surveys

Dandona L, Dandona R, Mandal P, Srinivas M, John RK, McCarty CA, et al. [Angle-closure glaucoma in an urban population in southern India. The Andhra Pradesh eye disease study.](#) *Ophthalmology*. 2000 Sep;107(9):1710-6.  
PubMed PMID: 10964834

Dandona L, Dandona R, Srinivas M, Mandal P, John RK, McCarty CA, et al. [Open-angle glaucoma in an urban population in southern India: the Andhra Pradesh eye disease study.](#) *Ophthalmology*. 2000 Sep;107(9):1702-9.  
PubMed PMID: 10964833

Hood DC, Odel JG, Zhang X. [Tracking the recovery of local optic nerve function after optic neuritis: a multifocal VEP study.](#) *Invest Ophthalmol Vis Sci*. 2000 Nov;41(12):4032-8.  
PubMed PMID: 11053309

Iwase A, Suzuki Y, Araie M, Yamamoto T, Abe H, Shirato S, et al. [The prevalence of primary open-angle glaucoma in Japanese: the Tajimi study.](#) *Ophthalmology*. 2004 Sep;111(9):1641-8.  
PubMed PMID: 15350316

Katz J, Tielsch JM, Quigley HA, Javitt J, Witt K, Sommer A. [Automated suprathreshold screening for glaucoma: the Baltimore Eye Survey.](#) *Invest Ophthalmol Vis Sci*. 1993 Nov;34(12):3271-7.  
PubMed PMID: 8225862

Leske MC, Connell AM, Schachat AP, Hyman L. [The Barbados Eye Study. Prevalence of open angle glaucoma.](#) *Arch Ophthalmol*. 1994 Jun;112(6):821-9.  
PubMed PMID: 8002842

Leske MC, Connell AM, Wu SY, Hyman LG, Schachat AP. [Risk factors for open-angle glaucoma. The Barbados Eye Study.](#) *Arch Ophthalmol*. 1995 Jul;113(7):918-24.  
PubMed PMID: 7605285

Sadun AA, Carelli V, Salomao SR, Berezovsky A, Quiros PA, Sadun F, et al. [Extensive investigation of a large Brazilian pedigree of 11778/Haplogroup J Leber hereditary optic neuropathy](#). *Am J Ophthalmol*. 2003 Aug;136(2):231-8.  
PubMed PMID: 12888043

Sadun F, De Negri AM, Carelli V, Salomao SR, Berezovsky A, Andrade R, et al. [Ophthalmologic findings in a large pedigree of 11778/Haplogroup J Leber hereditary optic neuropathy](#). *Am J Ophthalmol*. 2004 Feb;137(2):271-7.  
PubMed PMID: 14962416

Schuman JS, Massicotte EC, Connolly S, Hertzmark E, Mukherji B, Kunen MZ. [Increased intraocular pressure and visual field defects in high resistance wind instrument players](#). *Ophthalmology*. 2000 Jan;107(1):127-33.  
PubMed PMID: 10647731

Shen SY, Wong TY, Foster PJ, Loo JL, Rosman M, Loon SC, et al. [The prevalence and types of glaucoma in malay people: the Singapore Malay eye study](#). *Invest Ophthalmol Vis Sci*. 2008 Sep;49(9):3846-51.  
PubMed PMID: 18441307

Taylor HR, Livingston PM, Stanislavsky YL, McCarty CA. [Visual impairment in Australia: distance visual acuity, near vision, and visual field findings of the Melbourne Visual Impairment Project](#). *Am J Ophthalmol*. 1997 Mar;123(3):328-37.  
PubMed PMID: 9063242

Wensor MD, McCarty CA, Stanislavsky YL, Livingston PM, Taylor HR. [The prevalence of glaucoma in the Melbourne Visual Impairment Project](#). *Ophthalmology*. 1998 Apr;105(4):733-9.  
PubMed PMID: 9544649

## Trials

Cotter SA, Varma R, Ying-Lai M, Azen SP, Klein R. [Causes of low vision and blindness in adult Latinos: the Los Angeles Latino Eye Study](#). *Ophthalmology*. 2006 Sep;113(9):157482.  
PubMed PMID: 16949442

Gaasterland DE, Ederer F, Sullivan EK, Caprioli J, Cyrlin MN. [Advanced Glaucoma Intervention Study .2. Visual field test scoring and reliability](#). *Ophthalmology*. 1994 Aug;101(8):1445-55.  
PubMed PMID: 7741836

Gordon MO, Beiser JA, Brandt JD, Heuer DK, Higginbotham EJ, Johnson CA, et al. [The Ocular Hypertension Treatment Study: baseline factors that predict the onset of primary open-angle glaucoma](#). *Arch Ophthalmol*. 2002 Jun;120(6):714-20.  
PubMed PMID: 12049575



Heijl A, Bengtsson B, Chauhan BC, Lieberman MF, Cunliffe I, Hyman L, et al. [A comparison of visual field progression criteria of 3 major glaucoma trials in early manifest glaucoma trial patients.](#) *Ophthalmology*. 2008 Sep;115(9):1557-65.  
PubMed PMID: 18378317

Heijl A, Bengtsson B, Hyman L, Leske MC, Early Manifest Glaucoma Trial Group. [Natural History of Open-Angle Glaucoma.](#) *Ophthalmology*. 2009 Dec;116(12):2271-6.  
PubMed PMID: 19854514

Heijl A, Leske MC, Bengtsson B, Hyman L, Bengtsson B, Hussein M, et al. [Reduction of intraocular pressure and glaucoma progression: results from the Early Manifest Glaucoma Trial.](#) *Arch Ophthalmol*. 2002 Oct;120(10):1268-79.  
PubMed PMID: 12365904

Johnson CA, Keltner JL, Cello KE, Edwards M, Kass MA, Gordon MO, et al. [Baseline visual field characteristics in the ocular hypertension treatment study.](#) *Ophthalmology*. 2002 Mar;109(3):432-7.  
PubMed PMID: 11874743

Keltner JL, Johnson CA, Beck RW, Cleary PA, Spurr JO. [Quality control functions of the Visual Field Reading Center \(VFRC\) for the Optic Neuritis Treatment Trial \(ONTT\).](#) *Controlled Clin Trials*. 1993 Apr;14(2):143-59.  
PubMed PMID: 8500303

Keltner JL, Johnson CA, Spurr JO, Beck RW. [Visual field profile of optic neuritis. One-year follow-up in the Optic Neuritis Treatment Trial.](#) *Arch Ophthalmol*. 1994 Jul;112(7):946-53.  
PubMed PMID: 8031275

Kim J, Dally LG, Ederer F, Gaasterland DE, VanVeldhuisen PC, Blackwell B, et al. [The Advanced Glaucoma Intervention Study \(AGIS\): 14. Distinguishing progression of glaucoma from visual field fluctuations.](#) *Ophthalmology*. 2004 Nov;111(11):2109-16.  
PubMed PMID: 15522379

Krupin T, Liebmann JM, Greenfield DS, Rosenberg LF, Ritch R, Yang JW, et al. [The Low-pressure Glaucoma Treatment Study \(LoGTS\) study design and baseline characteristics of enrolled patients.](#) *Ophthalmology*. 2005 Mar;112(3):376-85.  
PubMed PMID: 15745762

Leske MC, Heijl A, Hyman L, Bengtsson B. [Early Manifest Glaucoma Trial: design and baseline data.](#) *Ophthalmology*. 1999 Nov;106(11):2144-53.  
PubMed PMID: 10571351

McKean-Cowdin R, Wang Y, Wu J, Azen SP, Varma R, Los Angeles Latino Eye Study Group. [Impact of visual field loss on health-related quality of life in glaucoma: the Los Angeles Latino Eye Study.](#) *Ophthalmology*. 2008 Jun;115(6):941-8.  
PubMed PMID: 17997485

Miglior S, Zeyen T, Pfeiffer N, Cunha-Vaz J, Torri V, Adamsons I, European Glaucoma Prevention Study (EGPS) Group. [Results of the European Glaucoma Prevention Study.](#) *Ophthalmology*. 2005 Mar;112(3):366-75.  
PubMed PMID: 15745761

Musch DC, Gillespie BW, Lichter PR, Niziol LM, Janz NK, CIGTS Study Investigators. [Visual field progression in the Collaborative Initial Glaucoma Treatment Study the impact of treatment and other baseline factors.](#) *Ophthalmology*. 2009 Feb;116(2):200-7.  
PubMed PMID: 19019444

Ocular Hypertension Treatment Study Group; European Glaucoma Prevention Study Group, Gordon MO, Torri V, Miglior S, Beiser JA, et al. [Validated prediction model for the development of primary open-angle glaucoma in individuals with ocular hypertension.](#) *Ophthalmology*. 2007 Jan;114(1):10-9.  
PubMed PMID: 17095090

Trobe JD, Beck RW, Moke PS, Cleary PA. [Contrast sensitivity and other vision tests in the optic neuritis treatment trial.](#) *Am J Ophthalmol*. 1996 May;121(5):547-53.  
PubMed PMID: 8610798

Wakakura M, Minei-Higa R, Oono S, Matsui Y, Tabuchi A, Kani K, et al. [Baseline features of idiopathic optic neuritis as determined by a multicenter treatment trial in Japan. Optic Neuritis Treatment Trial Multicenter Cooperative Research Group \(ONMRG\).](#) *Jpn J Ophthalmol*. 1999 Mar-Apr;43(2):127-32.  
PubMed PMID: 10340795



**CE** 0297



**Carl Zeiss Meditec, Inc.**  
5160 Hacienda Drive  
Dublin, CA 94568  
USA  
[www.zeiss.com/hfa](http://www.zeiss.com/hfa)  
[www.zeiss.com/med/contacts](http://www.zeiss.com/med/contacts)



**Carl Zeiss Meditec AG**  
Goeschwitzer Strasse 51–52  
07745 Jena  
Germany  
[www.meditec.zeiss.com/hfa](http://www.meditec.zeiss.com/hfa)

**EN\_31\_020\_00031/US\_31\_020\_00031** Printed in Germany. CZ-IV/2017  
The contents of the brochure may differ from the current status of approval of the product or service offering in your country. Please contact our regional representative for more information. Subject to changes in design and scope of delivery and due to ongoing technical development. Humphrey, HFA, Guided Progression Analysis, GPA, STATPAC, Visual Field Index, VFI, SITA Fast, and SITA-SWAP are either trademarks or registered trademarks of Carl Zeiss Meditec AG or other companies of the ZEISS Group in Germany and/or other countries.  
© Carl Zeiss Meditec, Inc., 2017. All rights reserved.