<table>
<thead>
<tr>
<th>Authors</th>
<th>Study type</th>
<th>Number of patients</th>
<th>OCT type</th>
<th>Objective and key findings</th>
<th>Limitations</th>
</tr>
</thead>
</table>
| Merle (2008) | CS         | 15                 | TD, St   | - **pRNFL in NMO and differences to MS**  
- Average pRNFL reduced in NMO compared to HC (p<0.001) and MS (p=0.01)  
- Visual acuity in NMO is stronger impaired than in MS  
- pRNFL correlates with VA, CS, VF, visual EDSS. No of ON episodes | - NON eyes no statistical analysis  
- No macula analysis |
| De Seze (2008) | CS, P      | 35 (29 NMO and 6 NMOSD) | TD, St | - **pRNFL comparison of NMO and HC and visual impairment**  
- Average pRNFL reduced in NMO (p<0.001)  
- OCT correlates with VF, VA/VEP, and EDSS | - Mix of ON and NON eyes  
- No MS  
- No macula analysis |
| Naismith (2009) | CS         | 22 (17 NMO, 5 NMOSD) | TD, St | - **pRNFL comparison of NMO and MS and visual impairment**  
- Average pRNFL reduced in NMO compared to MS (p<0.01)  
- Average pRNFL reduced in NMO-ON compared to MS-ON (p<0.05)  
- I, S, N quadrant in NMO more affected than in MS, T quadrant NMO similar to MS  
- RNFL in MS-NON thinner than in NMO-NON (p<0.05) | - No macula analysis |
| Ratchford (2009) | CS         | 26 (19 NMO, 7 NMOSD with ON), 17 LETM | TD, St | - **pRNFL and TMV and visual parameters for differentiation between NMO and MS**  
- Average pRNFL, TMV and LCVA reduced in NMO-ON compared to HC (all p<0.0001)  
- Average pRNFL and TMV reduced in NMO-ON compared to MS-ON (pRNFL: p<0.0001; TMV: p=0.001)  
- No significant difference for pRNFL, TMV and LCVA between NMO-NON and HC  
- Correlations with VA and CS: NMO also functional stronger affected | - No RNFL quadrant analysis |
| Green (2009)  | CS         | 16                 | TD, St | - **Distinctive retinal nerve fibre layer and vascular changes in neuromyelitis optica following optic neuritis**  
- More vascular changes in NMO compared to MS  
- Average pRNFL reduced in NMO compared to MS  
- In NMO all quadrants affected, in MS mainly temporal | - In results no numbers for OCT parameters  
- No macula analysis |
| Nakamura (2010) | CS, IV     | 18 (14 NMO, 4 NMOSD - ON) | TD, St | - **Comparison of RNFL between NMO and MS and effect of high-dose intravenous methylprednisolone (HIMP)**  
- Average pRNFL reduced in NMO-ON compared to MS-ON (p = 0.0006)  
- All pRNFL quadrants reduced in NMO--ON compared to MS-ON (S, I: p<0.001, N, T: n.s.)  
- RNFL correlates with VA in both MS and NMO  
- HIMP helped to preserve the RNFL | - NON eyes not statistically analyzed  
- No macula analysis |
| Monteiro (2012) | CS, P      | 33 NMOSD 28 LETM-NON | SD, To | - **RNFL and macular thickness comparison of NMO and MS**  
- Average pRNFL reduced in NMO-ON compared to MS-ON (p=0.02) and HC (p<0.0001) | - 15 NMO eyes excluded due to poor vision |
<table>
<thead>
<tr>
<th>Study (Year)</th>
<th>Authors</th>
<th>Sample</th>
<th>Follow-up</th>
<th>Methods</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Syc (2012)  | Syc     | L, MC  | 22       | 6 months | - Six months follow up study of inner-retinal layer analysis after ON in MS and NMO  
Cross-sectional:  
- Average pRNFL reduced in NMO-ON compared to MS-ON  
- OCT correlates with VF  
- No difference in average pRNFL in NMO-NON compared to MS-NON  
- GCIP in MS-ON, MS-NON, NMO-ON and NMO-NON(I) reduced compared to HC  
Longitudinal:  
- Thinning of the GCIP in eyes affected by acute ON 3 and 6 months after onset (p<0.001)  
- In contrast to RNFL, no swelling of GCL in acute ON |
| Bouyon (2013) | Bouyon | L | 30       | - | - OCT and visual follow-up in NMO (2 visits)  
- OCT decrease (p=0.006)  
- VA change n.s. |
| Fernandes (2013) | Fernandes | CS, O, P | 29 NMO, 29 LETM | 73 | Evaluation of Inner Retinal Layers in Patients with Multiple Sclerosis or Neuromyelitis Optica  
- mRNFL reduced in all (even LETM) patient groups compared to HC  
- GCIP reduced in NMO, MS-ON, MS-NON compared to HC  
- INL in NMO thicker than in MS-ON  
- No difference in mRNFL and GCIP between NMO and MS-ON patients |
| Gelfand (2013) | Gelfand | O, R | 23 NMO, 2 NMOSD with ON | - | - MME in NMO (retinal layer analysis)  
- MME in 20% of NMO patients  
- MME only in eyes with previous ON  
- pRNFL thinner in MME eyes compared with all NMO eyes without MME (p = 0.02)  
- TMV comparisons n.s.  
- VA reduced in MME eyes compared to non-MME (p=0.02) |
| Sotirchos (2013) | Sotirchos | CS | 39 (31 NMO&NMOSD with ON, 8 AQP4+ LETM) | 39 | - Intra-retinal layer analysis in NMO patients with focus on MME  
- MME in 26% of NMO patients  
- MME only in ON eyes  
- MME eyes in relation to non-MME ON eyes:  
  - Lower pRNFL (p=0.04), mRNFL thickness (p =0.004), GCIP (p=0.007)  
  - Higher INL thickness (p = 0.001)  
  - Lower high- and low-contrast VA |
<p>| Schneid (2013) | Schneid | CS | 17 (13 NMO, 4 NMOSD) | 17 | - One-to-one matching inner retinal layer comparison of NMO, MS and HC eyes with focus on ON |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Cohort</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>OCT Parameters</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park (2013)</td>
<td>19 (not Wingerchuk)</td>
<td>CP, O, CSS</td>
<td>15</td>
<td>SD, Sp</td>
<td>Retinal layer analysis in different macular locations in ON eyes from different diseases: - Also included 22 patients with isolated ON - Included only ON eyes and only one eye per patient - pRNFL different between isolated ON, NMO and MS in T (p=0.029) and I (p=0.013), average, S, N n.s.</td>
</tr>
<tr>
<td>Bichuetti (2013)</td>
<td>9</td>
<td>CS</td>
<td>48</td>
<td>SD, Sp</td>
<td>Comparison of RNFL in RRMS, NMO and CRION: - pRNFL and VA significantly worse in NMO (p&lt;0.004) and CRION (p&lt;0.0001) compared to RRMS after ON - No differences between NMO and CRION eyes</td>
</tr>
<tr>
<td>Kaufhold (2013)</td>
<td>20 NMOSD (incl. AQP4+ LETM)</td>
<td>RS, CS</td>
<td>219 MS, 39 CIS</td>
<td>SD, Sp</td>
<td>ON is associated with INL thickening and MME independently of MS: - MME only in ON eyes (with 1 exception) - MME frequency in ON eyes: 6.3% in MS 21.0% in NMOSD Subgroup unilateral ON: ON compared to NON eyes reduced mRNFL thickness (p&lt;0.001) and GCIP (p&lt;0.001) but higher INL thickness (p&lt;0.001)</td>
</tr>
<tr>
<td>Glehn (2014)</td>
<td>21 NMOSD (incl. AQP4+ LETM)</td>
<td>CS</td>
<td>34</td>
<td>SD, Sp</td>
<td>Correlation of RNFL to MRI derived brain measures: - pRNFL is significantly reduced in NMOSD compared to HC in average and all quadrants (all p&lt;0.001) - Correlation between RNFL and pericalcarine cortical thickness - NMOSD is associated with grey and white matter atrophy</td>
</tr>
</tbody>
</table>

Legend: CS: cross-sectional; P: prospective; MC: multi-center; O: observational; L: longitudinal; IV: interventional; RS: retrospective; CSS: case series study; TD: Time Domain; SD: Spectral Domain OCT; St: Stratus TD-OCT, Carl Zeiss Meditec; Ci: Cirrus HD-OCT, Carl Zeiss Meditec; Sp: Spectralis OCT, Heidelberg Engineering; NMOSD: neuromyelitis optica spectrum disorder; MS: multiple sclerosis; LETM: longitudinally extensive transverse myelitis; ON: optic neuritis;
NON: eyes without history of optic neuritis; HC: healthy controls; OCT: optical coherence tomography; CRION: chronic inflammatory optic neuropathy; CIS: clinically isolated syndrome; p/mRNFL: peripapillary/macular retinal nerve fiber layer; TMV: total macular volume; GCL: ganglion cell layer; IPL: inner plexiform layer; GCIP: Ganglion cell and inner plexiform layer; INL: inner nuclear layer; VA: visual acuity; VF: visual field; CS: contrast sensitivity; LCVS: Low-contrast visual sensitivity; MME: Microcystic macular edema; n.s.: not significant; RNFL quadrants: I: inferior; S: superior; N: nasal; T: temporal; Comments:

- Bold title: Either manuscript title or rough description of content
- p-values mainly only for pRNFL values because these were used in most studies