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Navn: Josefine Britze **Institution:** Rigshospitalet – Glostrup **Alder** __28___(hvis deltagelse i konkurrence)

TITLE:

Systematic Review of Ganglion Cell Layer Changes Measured by Optical Coherence Tomography in Multiple Sclerosis and Optic Neuritis

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INTRODUCTION: The aim of this study was to summarise existing findings regarding optical coherence tomography (OCT) measurements of ganglion cell layer (GCL) alterations in relation to multiple sclerosis (MS) and optic neuritis (ON).

METHODS: Peer-reviewed studies published prior to February 2016 were searched using PubMed and EMBASE. Studies were included if they (a) included data on GCL measured using OCT (b) in patients with either MS, clinically isolated syndrome or ON and (c) were in English.

RESULTS: 35/218 studies involving 4745 subjects were reviewed. Studies showed significant thinning of the GCL over the first weeks-12 months after acute ON (n=3). GCL thinning may have appeared before retinal nerve fiber layer (RNFL) thinning (n=5).

The GCL was significantly reduced in eyes of MS patients with (n=15) and without (n=15) previous ON (n=5).

GCL thinning showed some association with visual function, particularly low contrast letter acuity (LCVA) (n=8). GCL thickness could be a better estimate of visual function than RNFL thickness (n=3).

GCL and expanded disability status scale (EDSS) scores were correlated (n=8), and more strongly than with RNFL thinning (n=4). GCL thinning at 1-2 months after acute ON predicted visual function at 6 months (n=2).

CONCLUSIONS: In acute ON, thinning of the GCL may be detectable before thinning of the RNFL. GCL thinning occurs in ON and MS eyes with and without prior ON. GCL thickness might provide an estimate of neurodegeneration and may be of prognostic value with regards to visual function, at least in the short term. Longitudinal studies are warranted to determine whether GCL measurements can be used to predict long-term visual function and MS.