



**Title:** Synucleinopathy of the Retina in Parkinson Disease (PD).

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**Abstract**

Vision is one of the affected senses in PD, however there is a serious gap in our knowledge concerning the presence or absence of pathological alpha-synuclein in the human retina.

We will examine the postmortem PD retina for the presence or absence of alpha-synuclein. We will concentrate (but not exclusively) on the perifoveolar retina. Electrophysiological and postmortem studies demonstrate dopaminergic deficiency of the retinae of PD patients (1). Studies of vivo human retinal pathology using Optical Coherence Tomography (OCT) showed nerve fiber layer (NFL) thinning (2, 3, 4, 5, 6). The NFL represents the axons of retinal ganglion cells, which connect the retina to the brain via the optic tract and nerve. Dopaminergic amacrine cells in the retina do not contribute fibers to the NFL. The OCT reveals thinning of preganglionic layers and NFL suggesting that more than dopaminergic neuronal loss occurs in PD. The mechanism of neuronal loss, not only in the retina, is unclear in PD.

The area of the foveal retina identified in OCT studies as thinned in PD overlaps and extends the so called foveal avascular zone.

We will determine the presence and localization of alpha-synuclein in the retina of patients who suffered from Parkinson Disease (PD) and in healthy controls.