

Smoking Effects in Glaucoma

“Healthy life, healthy body, healthy optic nerve”



According to the Centers for Disease Control and Prevention (CDC), smoking cigarettes increases one's risk for coronary heart disease by 2 to 4 times; for stroke by 2 to 4 times; for men developing lung cancer by 25 times; and for women developing lung cancer by almost 26 times.

Those effects of smoking may be well known and understood. What has not been explored in as much depth until recently is how smoking affects a person's eyes and vision. Researchers at medical schools across the country have been investigating the effects of smoking on eyes and their findings show that smoking does adversely affect one's eyesight.

Sasan Moghimi, MD, Associate Professor of Ophthalmology at UC San Diego's Shiley Eye Institute and Viterbi Family Department of Ophthalmology, has been working on this research along with **Robert N. Weinreb, MD, Sally Baxter, MD, MSc**, and **Linda Zangwill, PhD**.

The research spanned a couple of glaucoma studies conducted by the Hamilton Glaucoma Center at SEI with the Edward S. Harkness Eye Institute at Columbia University Medical Center and the Bernard School of Medicine at the University of Alabama-Birmingham.

In one of their reports, started in 2020 and published in the Academy of Ophthalmology's (AAO) Ophthalmology magazine, patients with primary open angle glaucoma (POAG) were followed for over three years with at least 5 visual field (VF) tests and 5 visits of optical coherence tomography (OCT). OCT is an imaging test of the eye using light waves to take cross-section pictures of the retina. The findings showed that smokers' eyes had VF progression 2.2 times more than non-smokers'—meaning the smokers' glaucoma worsened.

It was also discovered that the more someone smoked, there was reduced optic nerve vessel density in glaucoma and more susceptible to glaucoma

progression. In addition, their other reports showed that heavy smokers had faster rates of thinning of their retinal nerve fiber layer (RNFL). The RNFL is made primarily of ganglion cells, which are the retinal neurons that communicate directly with the brain.

“The research clearly shows that smoking damages a person's vision. When someone stops smoking, they help their overall health and may help their sight,” stated Dr. Moghimi.

Interestingly, they demonstrated that after ≥ 25 years of smoking cessation, the risk of VF progression in former heavy smokers becomes similar to never smokers. This is in line with previous studies that demonstrated the risk of age-related macular degeneration (AMD) reduces to a baseline 20 years after smoking cessation

Further studies are needed to see if the smoker stops smoking whether this will decrease the glaucoma progression.