

Supplementary Table S6: *Impact of specific sleep abnormalities on ocular health*

Sleep Abnormality	Health Outcomes	Mechanisms
Insomnia	DED	Reduced tear production due to autonomic dysregulation
	Increased risk of ocular surface inflammation	impaired immune regulation causing corneal inflammation
OSA	IOP	Intermittent hypoxia
	Retinal damage and increased risk of glaucoma	Fluctuations in ocular blood flow increased oxidative stress and inflammation in retinal tissues
Circadian Rhythm Disorders	Impaired retinal function	Disrupted circadian rhythm of retinal metabolism
	Potential retinal degeneration	altered circadian regulation of tear production
	Tear film instability	
SD	Increased risk of cataract formation,	Oxidative stress
	Corneal hypoxia	reduced cellular repair processes in the lens
	Delayed epithelial healing	reduced blood flow to the cornea during SD