PEOPLE who wear soft contact lenses prior to refractive surgery have better postoperative best-corrected visual acuity and contrast sensitivity than their counterparts who wear spectacles, according to new data presented at the annual meeting of the Association for Research in Vision and Ophthalmology.

Details of the study were presented by Kuang-mon Ashley Tuan OD PhD, principal research scientist at Advanced Medical Optics (AMO). The study was designed to investigate whether these sorts of physiologic changes from soft contact lens wear could affect visual outcome after LASIK.

"It is already known that the wearing of soft contact lenses can induce corneal hypoxia and may decrease both corneal thickness and corneal keratocyte count. I wanted to find out if the soft-contact-lens-wearing population had a different response to LASIK."

Better refractive and visual outcome

Six month follow-up post-LASIK data revealed that there were a few statistically significant differences between the contact lens and spectacle groups. At six months, the soft contact lens group had a smaller degree of spherical refractive error than the spectacle wearers: -0.03 dioptres compared to +0.35 dioptres in the spectacle group, respectively.

"The soft contact lens group had better best corrected photopic, mesopic and mesopic-with-glare contrast sensitivity," Dr Tuan said.

Residual refractive error was weakly correlated to pre-operative corneal thickness, but was inversely correlated to the frequency of wearing contact lenses while sleeping. People who slept with their contact lenses on tended to have some residual refractive error. Also, not surprisingly, people with stronger prescriptions tended to have a greater corneal thickness, but this may have been due to a selection bias in the study, Dr Tuan said.

Contrast sensitivity was only minimally correlated to contact-lens-wearing patterns. Also, the best predictors for HOAs were pre-operative values for HOAs, she said.

A questionnaire administered to the patients showed there were no statistically significant differences in subjective measures such as visual satisfaction and reported visual symptoms. Overall, contact lens use did affect the refractive outcome of LASIK to a degree, but had minimal effect on HOAs. It's possible that the wearing of soft lenses led to changes in corneal physiology, Dr Tuan said. This would include changes such as reduced keratocyte count and stromal thinning, though more study is needed in this particular area.

"Soft contact lens wearers may have a little bit of under correction and the spectacle-wearing group tended to be a little bit over corrected. My guess is that the under correction from SCL wear, especially from extended wear, and the stromal thinning, may impact corneal biomechanics," she said.

"The study is intriguing because it provides a possible answer as to why some patients need enhancements," said George Beiko BM BCH (Oxon), from McMaster University in Canada. He was not involved in the study. He pointed out that the study doesn't answer everything yet.

"It does not look at the physiological changes adequately to state that this was the reason for the difference in the groups. If further studies support this finding, then the physiology should be investigated," he said.