

SOUTHWESTERN NEWS

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NEW CONTACT-LENS MATERIALS WILL REVOLUTIONIZE THE INDUSTRY, UT SOUTHWESTERN RESEARCHERS REPORT

DALLAS – Jan. 5, 2002 – Researchers at UT Southwestern Medical Center at Dallas report that contact lenses, both rigid and soft, made from new hyper-oxygen transmissible materials are expected to reduce the possibility of bacterial infection better than contact lenses currently on the market. Based in part on these findings, the Food and Drug Administration recently approved hyper-oxygen transmissible contact lenses for 30-day continuous wear.

The results of the UT Southwestern study are published in the January issue of *Ophthalmology*, the clinical journal of the American Academy of Ophthalmology.

Dr. H. Dwight Cavanagh, senior author of the study and vice chairman of ophthalmology and associate dean for clinical services at UT Southwestern, said study results provide a firm biological foundation for increased prospective safety of the new silicone hydrogel lens materials.

“The significance of our study is that for the first time we have a scientific-based rationale that has passed peer review at high levels that exactly predicts our current epidemiological risk pattern and strongly suggests that these new lenses will be the breakthrough in reducing risk for infection that everyone has been waiting for,” said Cavanagh.

Cavanagh said conventional contact lenses disturb the surface of the cornea, thereby allowing pathogenic bacteria, such as *Pseudomonas aeruginosa*, to bind to the corneal surface cells and potentially initiate infection. The most significant and devastating clinical complications among contact-lens wearers have been corneal ulceration and infection, which can lead to permanent visual loss, Cavanagh said.

“Until now, no apparent clinical progress had been made in ameliorating this critical clinical problem since disposable contacts were first introduced nearly 10 years ago,” Cavanagh said.

UT Southwestern researchers examined risk estimates for contact lens-associated increases in bacterial binding by lens type and wearing schedules, which previous benchmark studies had never addressed. Cavanagh and his team followed 178 patients for a year. They

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compared the new Bausch & Lomb soft lenses and the Menicon rigid lenses, both made from hyper-oxygen transmissible material, in daily wear and extended wear to lenses made from conventional materials.

“This is the first randomized, prospective, masked clinical study with contact lenses that demonstrates significant difference in bacterial binding to the cornea as a function of the oxygen transmission of the lenses themselves,” Cavanagh said. “This means that there are really small amounts of increased bacterial binding seen with extended-wear, even up to 30 nights, with the novel contact-lens materials that transmit high amounts of oxygen to the eye as compared to presently available conventional materials.”

Cavanagh said the study established three important findings. First, hyper-oxygen transmissible soft-lenses produced significantly less bacterial binding than conventional lens with no significant difference between six-night and 30-night wear. Second, researchers noted for the first time a remarkable adaptive recovery after six months with all soft lenses, with a decrease in bacterial binding to the corneal surface. Lastly, 30-night wear produced no significant increases in bacteria binding after one year.

An unexpected finding of the study was that rigid contact lenses appear better for the eye than soft because they promote tear exchange, which washes out debris and allows more oxygen to reach the eye.

For the past 20 years, ophthalmologists have warned the public against wearing contact lenses overnight because it could make them more susceptible to eye infections.

According to the Contact Lens Institute, more than 30 million Americans and 75 million individuals worldwide currently use contact lenses as an alternative to eyeglasses to correct refractive eye problems.

Other UT Southwestern ophthalmology researchers involved in the study were Dr. Patrick Ladage, postdoctoral researcher; Mike Molai, research study coordinator; Dr. Ling Li, research associate; Dr. W. Matthew Petroll, associate professor; and Dr. James Jester, professor.

The research was supported in part by the National Institutes of Health, Bausch & Lomb, Menicon, Research to Prevent Blindness, the Pearle Vision Foundation and the Chilton Foundation.

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