



**BRIEF QUESTIONS  
AND ANSWERS  
ON CURRENT  
CLINICAL  
CONTROVERSIES**

## **Q: Is laser vision correction safe in patients with diabetes?**

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**A:** SOME PATIENTS with diabetes can be candidates for laser vision correction, but certain concerns need to be addressed.

### ■ TWO TYPES OF LASER VISION CORRECTION

Laser vision correction involves resurfacing the cornea with a laser to correct refractive errors such as nearsightedness or astigmatism. Two types of laser keratotomy are now used: **photorefractive keratotomy (PRK)** and **laser-assisted in situ keratomileusis (LASIK)**. LASIK is the most common laser corrective procedure performed in the United States.

### ■ PRK IS PROBLEMATIC FOR DIABETIC PATIENTS

In PRK, the laser is used to refigure the curvature of the surface of the cornea. This requires removal of the corneal epithelium, and this is the part of PRK that concerns me with regard to diabetic patients. The epithelium may not heal as well in diabetic patients. Although not all studies support this concern, I think that patients with diabetes mellitus are not good candidates for PRK.

### ■ LASIK POSES RISK FOR PATIENTS WITH PROLIFERATIVE RETINOPATHY

In LASIK, an extremely sharp keratome is used to create a hinged flap or cap of corneal epithelium. The flap is folded back, and a laser is programmed to cut precise amounts of tissue from the corneal bed or stroma. Once the right amount of correction has been achieved, the flap is put back in its original place without sutures. Epithelial healing is generally not a problem with this procedure.

Still, there may be a problem for diabetic patients who undergo LASIK. Suction is applied to the eye during creation of the hinged corneal flap, and this can increase the intraocular pressure, which could in turn produce transient retinal ischemia. Consequently, I think that patients with proliferative retinopathy are probably not good candidates for LASIK, especially if the fluorescein angiogram shows evidence of retinal ischemia such that further ischemia might lead to a permanent loss of retinal function.

Finally, we should remember that diabetic patients, especially those with type 1 (insulin-dependent) diabetes, may notice shifts in their vision. These are related to their serum glucose levels and can lead to difficulties with changing or unstable refraction.

### ■ RECOMMENDATION

Therefore, my personal approach is to consider LASIK in patients with diabetes mellitus who do not have retinopathy. In diabetic patients with proliferative retinopathy, I recommend preoperative fluorescein angiography to look for areas of retinal vascular ischemia. If such areas are found, I would not proceed with LASIK, at least not as it is currently performed.

### ■ SUGGESTED READING

**Chaudhry IM, Conti ER, Steinert RF.** Advances in refractive surgery. New options expand the scope of corrective procedures. *Postgrad Med* 1999; 106(3):129-137.

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**Manche EE, Carr JD, Haw WW, Hersh PS.** Excimer laser refractive surgery. *West J Med* 1998; 169:30-38.

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**LASIK is an option for diabetic patients without proliferative retinopathy**