inder from -1.0 to -5.0 diopters with the laser disc models M01 to M09. Laser disc technology for astigmatism management has the advantages of the smoothest ablated surface, simplicity, accurate axis alignment, minimal cut depth, speed, elimination of ablation steps, and low disc inventory as compared to mechanical and scanning systems.

One of the advantages of LASIK is that it is easy to perform another enhancement operation to correct residual myopia and/or astigmatism. The enhancement rate of our study was 2.52% (14 of 554 eyes), which is between the 0% and 13% reported by other authors.[8,10,11,15] Causes of the residual refractive error include regression, a poorly calibrated LASIK algorithm, and inconsistent laser beam energy and laser-to-corneal ablation rate. The potential mechanisms for regression of the refractive effect include nuclear sclerosis of the crystalline lens, corneal ectasia, stromal synthesis, and compensatory epithelial hyperplasia (CEH).[10,11] Because the argon-fluoride gas is so sensitive to environmental factors, inconsistent laser beam energy may result from fluctuating room air temperature and humidity or unstable electric voltage. In addition, hydration of the corneal stroma show individual differences possibly causing the ablation rate of the cornea to vary.

LASIK is a more complex and advanced technique and requires a long learning curve and a surgeon with skilled hands. LASIK complications may arise during surgery with the relation of the microkeratome and laser ablation, and in postoperative periods. Microkeratome complications include inability to seat the suction ring, inadequate suction, chemosis, incomplete microkeratome pass, a free cap, an irregular cap/flap, microkeratome failure to advance, and perforation of the anterior chamber. Laser ablation complications include eccentric ablation and ablation of the nasal edge flap. Postoperative complications include infection, interface debris, epithelial ingrowth, central islands, folds, melting, haze, undercorrection, overcorrection, and irregular astigmatism. We expect that these complications and problems will be solved in the future with revolutions of the LASIK procedure with a new microkeratome, refined laser beam, and topography-link profiles.

We also reviewed published papers describing techniques and results of laser in situ keratomileusis (LASIK) and summarize the instruments used, nomograms, preoperative and postoperative refractions, predictability, outcome, safety, and complications in (Table 3). Our results are slightly better than those of others. One reason for this may be the more-advanced excimer laser machine and operation procedure we used. Besides, surgeons more skilled in LASIK surgery may also be an important factor. Finally, we draw the following conclusions for our surgical results in myopic LASIK: 93.6% of eyes were within ± 1.0 diopters of the intended correction, 94.6% of eyes had an UCVA better than 20/40, 97.2% of eyes maintained or gained the BCVA, and patients representing 95.5% of eyes were satisfied or accepted their treatment. In toric LASIK, 90.8% of eyes were within ± 1.0 diopters of the intended correction, 88.5% of eyes had an UCVA better than 20/40, 94.6% of eyes maintained or gained the BCVA, and patients accounting for 93.8% of eyes were satisfied or accepted their treatment. In conclusion, the study suggests convincing predictability, efficacy, safety, and satisfaction of myopic LASIK using aspheric multizone technology for high myopia and toric LASIK with the laser disc technology for high myopia and astigmatism.

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