



Aberration-guided LASIK

Addition to the Informed Consent of Patients for Laser in situ Keratomileusis (LASIK)

What is aberration-guided LASIK?

The optical system of the human eye is not perfect. Instead, the eye produces a number of so-called optical aberrations or, in other words, imaging errors. This means that even the eye with normal vision produces images, which are not as sharp as would theoretically be possible. In spite of these aberrations, most people are able to obtain 100% vision. If, however, the eye did not have optical aberrations, some of us would be able to obtain 200% vision.

Unfortunately, so far it was not possible to correct the optical aberrations of the eye. This result cannot be achieved with eyeglasses. Soft contact lenses do not provide this effect either. Hard contact lenses can at least correct the part of the optical aberration created by the eye's cornea.

Recent technology has brought equipment on the market, with which the irregularities of the cornea and the optical aberrations of the eye can be measured precisely. This technology is referred to as corneal topography and aberrometer technology. This leads us to the question whether these devices can be used for treatment.

How is a LASIK treatment calculated now?

The necessary amount of ablation for LASIK surgery is calculated based on the optimal values for vision correction with eyeglasses. This procedure works quite well, although it is theoretically not optimal because, as mentioned before, eyeglasses cannot correct the optical aberrations of the eye.

How could a LASIK treatment be calculated alternatively?

The ablation amount can be calculated based on the measurements of the corneal topography and on the aberrometer measurements. At least in theory, it is therefore possible to correct nearsightedness (myopia) and astigmatism as well as the aberrations of the eye. This would mean that vision could be better after LASIK surgery and without eyeglasses than prior to LASIK surgery.

Are there differences compared to the normal LASIK treatment?

There is no difference in the LASIK procedure itself. The only difference is the calculation of the treatment, as described above.

Are there any additional costs?

An aberration-guided LASIK requires additional measurements, which are charged in accordance with the German coding system for the calculation of medical services (Gebührenordnung für Ärzte – GOÄ). Additionally, the treatment cards used for the operation of the laser are single-use cards, which are also charged in accordance with the German coding system for the calculation of medical services (Gebührenordnung für Ärzte – GOÄ).

What are the advantages of aberration-guided LASIK?

Aberration-guided LASIK procedures have been performed since 2000. It has been demonstrated that in a few cases, a vision exceeding 100% could be obtained. The main advantage however is the better vision at dusk and at night compared to the “normal” LASIK surgery: simply put, in an aberration-guided LASIK procedure, a slightly bigger part of the cornea can be shaped into an optimal shape. The result is that halos, which may occur when the pupil is dilated at dusk, occur less often and are less noticeable. Because halos are experienced most frequently by patients with relatively wide pupils and more severe nearsightedness, an aberration-guided LASIK procedure often is advantageous in these cases.

What are the disadvantages and complications?

It is theoretically possible that the surgery results are less exact than those of a normal LASIK procedure, as only little data is available. However, these less exact results could be corrected with another LASIK treatment.

Other side effects are not known but, as with any new method, cannot be excluded completely.

Informed consent of patient after consultation

I have received this informational leaflet on _____ and have read it and understand its content. In conjunction with the information in this leaflet Dr. _____ has had a personal consultation with me and given me the opportunity to ask any questions important to me. I have no further questions and I understand the information given to me.

I hereby agree to an aberration-guided LASIK procedure on my *right* eye.

City, Date

Patient's signature

Physician's signature

I hereby agree to an aberration-guided LASIK procedure on my *left* eye.

City, Date

Patient's signature

Physician's signature