Radial Keratotomy Encyclopedia Article

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Radial Keratotomy

Radial keratotomy (RK) is a surgical procedure in which precisely placed micro incisions are made in a patient's cornea--the clear matter which covers the eyeball-- to permanently correct near-sightedness, or myopia. In myopia, the curvature of the cornea causes light rays entering the eye to fall short of the *retina*. Radial keratotomy flattens the eyeball minutely, allowing light rays to focus at the retina. First performed in Japan in 1955 by T. Sato, Soviet ophthalmologist Svyatoslav Fyodorov developed the procedure in the 1970s after removing glass splinters from a patient whose vision actually improved once the eye healed. The procedure was brought to the United States in 1977 and further refined. Although once considered a risky procedure--and there are still risks involved--more than one million people world-wide have undergone treatment. In most instances, RK can improve myopic vision to 20/40 or better, even though some cases the patient still needs lenses due to under-correction and in others because of over-correction which causes far- sightedness.

Other permanent procedures as alternatives to RK include photorefractive keratectomy (PRK) which uses an excimer (ultraviolet) laser to vaporize corneal tissue; automated lamellar keratectomy (ALK), in which a microkeratome is used to remove portion of the cornea which is frozen, reshaped by grinding, and sewn back into the eye; laser-assisted intrastromal keratomileus (LASIK), which combines portions of ALK and LASIK to make a tiny flap on the cornea thrugh which the inside layers are reshaped and the flap then closed; and orthokeratology--flattening the cornea by the rubbing of hard contact lenses which exert pressure on the eye.