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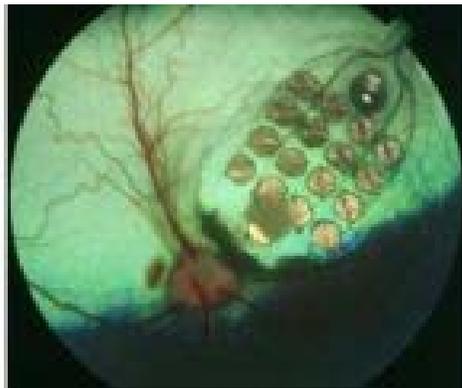
Retinal Implant May Offer Partial Sight for the Blind

Model 1, an *epiretinal* prosthesis developed by the Doheny Retinal Institute of the University of Southern California, aims to restore vision in those with afflictions such as retinitis pigmentosa and macular degeneration. Experimental protocols were performed first with canines to assess safety; subsequently one patient has been fitted with the device with two more to follow.

Differing from other retinal prostheses, the Model 1 is a multi-electrode stimulator implanted on top of the retinal surface. A camera mounted on a spectacle frame transmits digitized signals wirelessly to an antenna (mounted intraocularly) attached to the electrodes, which delivers “charge-balanced stimulation pulses” to retinal neurons. The mechanism of the receiver is said to be similar to that of cochlear implants.

The first subject was a 74-year-old male with no light perception documented for 50 years in the experimental eye. Objective testing included excitation of the electrodes and measurement of visual cortical responses. This proved successful as the subject was able to map the stimulation of each individual electrode corresponding correctly with his visual field. Pairs of stimulated electrodes were mapped correctly over 75% of the time. Subjective testing utilizing the camera revealed the ability of the man to locate points of light, trace a large letter and follow the direction of light, as well as identify objects against a luminous background.

Model 1 uses sixteen electrodes. With two more models to follow, research is being conducted to allow for an increased density of electrodes, thereby increasing resolution.



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We dedicate ourselves to enhancing the quality of life for every individual whose life we touch, by helping each to see his or her best, and by preserving our patients' vision and eye health throughout life.

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