

Cases of Restored Vision

As Myers notes, Michael May's vision was restored in March 2000. May has had difficulty recognizing faces of family and friends as well as emotional expressions on unfamiliar faces. He has also had difficulty mastering depth perception. For example, he perceives people who walk away from him as shrinking. On the other hand, he does track his own and others' movements with precision. He can play soccer with his sons, and he enjoys movies. He also distinguishes shaded areas from illuminated surfaces. He's successfully made the transition from being an expert blind skier using verbal guidance to being a competent sighted skier. May sees learning to see as an exciting challenge, perhaps partly because he is an outgoing, optimistic person with a supportive spouse.

Adults who regain sight after being blind for most or all of their lives often experience initial elation followed by emotional distress, depression, and sometimes even suicide. For example, in *An Anthropologist on Mars*, Oliver Sacks relates the case of Virgil, who saw little until after having cataract surgery at age 50. Sacks describes Virgil as a "mental blind" person who could see but could not decipher what was out there. Virgil was often in conflict between looking at objects or touching them as he had always done. And when feeling visually overwhelmed, he would act as if he were still blind. Virgil quickly fell into depression and just four months after his surgery died of pneumonia.

As Bruce Bower explains, restored vision requires enormous accommodation from the brain. Brain-imaging studies reveal that in primates as much as one-quarter of the brain is normally devoted to vision. In blind individuals, these areas take on entirely new responsibilities. For example, the visual cortex shows increased activity when blind people use their fingers to read Braille publications. With restored vision, these areas must be reclaimed.

Of special interest are studies of blind children in India and Canada who, as a result of cataract surgery, regain vision early in life. For example, neuroscientist Pawan Sinha describes the case of a 10-year-old in Calcutta who, not long after surgery, could catch a paper ball thrown to him, recognize drawings of animals, and greet all of his physicians and nurses by name. Sinha and his colleagues are tracking the progress of 20 Indian children, ages 6 to 15, who grew up sightless before surgical removal of their cataracts. They are surprised by how much the kids recognize shortly after their surgery. These findings do not seem entirely consistent with those who have studied children elsewhere.

Working at McGill University in Canada, psychologist Daphne Maurer has studied young children who have had cataract-induced blindness in only one eye. During infancy, visual information entering the left eye goes mainly to the right hemisphere, while the right eye sends its input mainly to the left hemisphere. Interestingly, those who are blind in only the left eye for the first two to six months of life lose elements crucial for discerning facial recognition, for example, the ability to detect differences in the spacing of the eyes. Those of the same age with right-eye cataracts do not have this difficulty. It seems that the capacity to notice the spacing of facial features develops only if the right hemisphere receives visual stimulation during a brief period early in life.

Bower, B. (2003, November 22). Vision seekers: Giving eyesight to the blind raises questions about how people see. *Science News*, 331-332.