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STEM CELL THERAPY IN OPHTHALMOLOGY

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Stem cells are undifferentiated biological cells that can turn into specialized cells and divide through mitosis in order to produce more stem cells. As they are unspecialized, all their genes are switched on, and so they can continue to divide for long periods even after they have been inactive. Human body possesses two types of stem cells: embryonic stem cells, which are isolated from the inner cell mass of blastocysts, and adult stem cells, which are found in various tissues. In adult organisms, stem cells work as a repair system for the body, replenishing adult tissues.

Stem cell therapy is a way of healing that introduces new adult stem cells into damaged tissue in order to treat disease or injury. Many medical researchers believe that stem cell therapy has the potential to change the face of future medicine. The ability of stem cells to self-renew and give rise to next generations with variable degrees of differentiation capacities, offers a great potential for generation of tissues that can potentially replace diseased and damaged areas in the body, with minimal risk of rejection and side effects.

In my report I would like to pay attention to blindness and vision problems that could be possibly healed with the help of stem cell therapy. Since 2003, researchers have successfully transplanted corneal stem cells into damaged eyes to restore vision; many people finally got a chance to see the world around them. I would like to give a review of all achievements made by ophthalmologists, the perspectives for future improvement, and the difficulties and disadvantages of stem cell therapy in ophthalmology.