

Information Sheet 2 - Your Research (Science)

You want to carry out research to see if it's possible to re-connect a severed optic nerve – the nerve which carries signals from the eye to the brain, enabling us to see. If successful, your research could help to restore sight, and might also give us clues about how to repair other sorts of damage to the brain, nerves or spinal cord. Your research would involve severing the optic nerve in rats, rejoining them, and looking at ways to encourage them to grow normally again. Following this surgery, you would study the rats over a period of months to assess this.

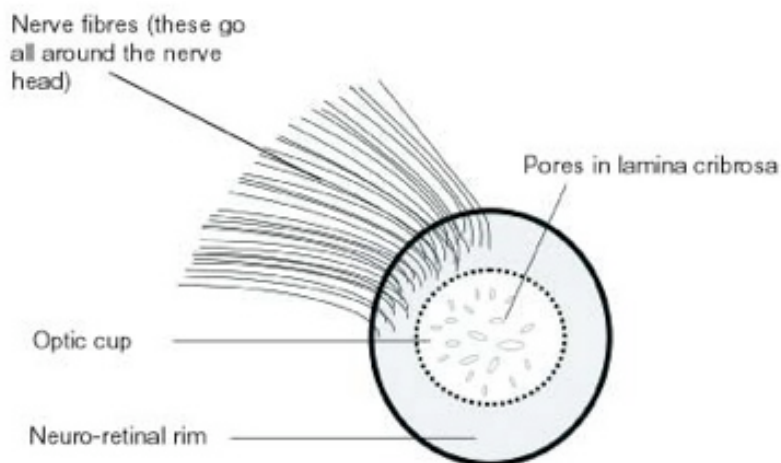
(For further detail see:

http://www.rds-online.org.uk/pages/headline_detail.asp?i_ToolbarID=6&i_PageID=771)

Structure of the Eye

The Optic Nerve

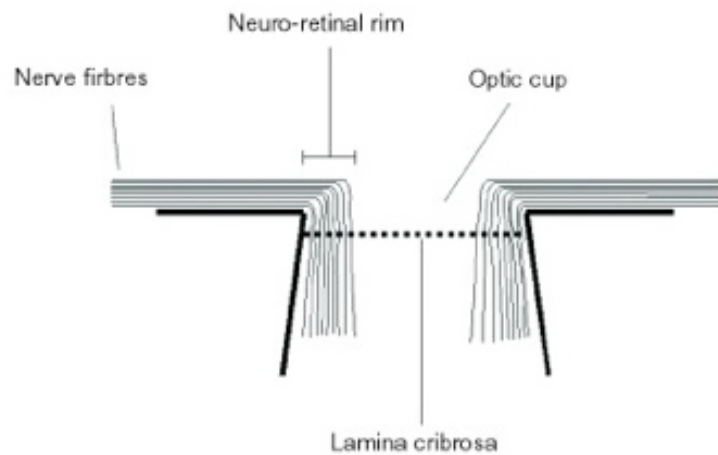
The Optic Nerve



Structure of the optic nerve head (head on)

Behind the pupil, the lens of the eye is suspended from the ciliary body by fine ligaments. The cornea and lens focus a picture of your surroundings on the retina, which is the light-sensitive layer that coats the inside of the eye. The picture of your surroundings is sent from the retina to the brain by nerve fibres, which derive from nerve cells in the retina. The optic nerve is formed by about one million of these nerve fibres collected together. The optic nerve starts at the back of the eye at the optic nerve head, which is also called the optic disc.

The nerve fibres leave the eye through pores (holes) in the *lamina cribrosa*, a sieve-like structure in the optic nerve head. Blood vessels enter and leave the eye through the same structure. The nerve fibres form a rim around the edge of the *optic nerve* head (*neuro-retinal rim*), leaving a central indentation without nerve fibres called the *optic cup*.



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Structure of the *optic nerve* (side on)

http://www.glaucoma-association.com/nqcontent.cfm?a_id=340&=fromcfc&tt=article&lang=en&site_id=176