Introduction: Full-thickness corneal suture usage in primary surgical repairing of penetrating corneal injuries nowadays is still controversy. Purpose: To evaluate features of corneal regeneration depending on the depth of suture placement in experiment. Methods: The assignment was done on 30 eyes of 15 adult rabbits (chinchilla). Standardized penetrating corneal wound on both eyes was performed. Full-thickness 10/0 nylon sutures applied on the right eye, and 2/3 corneal depth - on the left. Light- and transmission electron microscopy of corneal scar were performed on 3rd, 7th and 30 days after surgery. Results: Usage full-thickness corneal sutures, guarantee reposition of all corneal layers including Descemet's membrane by light microscopy from the 3rd to 30th day. In partial-thickness sutures, good reposition was found only in anterior and middle third of the corneal wound, with divergence of the posterior third and shortening of Descemet's membrane. Full-thickness corneal sutures according to transmission electron microscopy lead to activation of extra- and intracellular reparation processes in endothelial cells due to restoring their barrier function. That, in its turn, accelerated reparation of the wound channel by activating keratocytes across the entire depth of corneal stroma, and as result - ultrastructure of corneal scar forms closely to undamaged cornea. Conclusions: Full-thickness sutures in primary corneal wound repairing allows to fully restore architectonics in all layers of traumatized cornea, to stimulate functional activity of endothelial cells and keratocytes, accelerated reparation of the wound channel.