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**The effect of hypergravity on the lens, cornea and tail regeneration in
*Urodela***

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Abstract

In previous experiments onboard Russian Bion/Foton satellites it was found that exposure to microgravity causes changes in eye lens regeneration of *Urodela*. The changes included higher rate of regeneration, increased cell proliferation in lens anlage, and synchronization of lens restoration. Similar changes were observed regarding tail regeneration. Recently, investigations were performed to find out whether exposure to hypergravity could also alter lens, cornea and tail regeneration in the newt *P. waltl*. Nine days prior to exposure the left lens was surgically removed through corneal incision and distal 1/3 of the tail was amputated, thus initiating regeneration. The experimental animals were allowed to recover for 9 days at 1 g and then exposed to 2 g for 12 days in an 8 ft diameter centrifuge at NASA Ames Research Center. The experimental animals were divided into 1 g controls, 2 g centrifugation animals, basal controls, and aquarium controls. Lens and corneal regeneration appeared to be inhibited in 2g group compared to 1 g animals. In all 1 g controls, lens regeneration reached stages VII-IX in a synchronous fashion and corneal regeneration was nearly complete. In the 2 g newts, neural retinal detachment from the pigmented epithelium was seen in most operated eyes. It was also observed in the non-operated (right) eyes of the animals exposed to 2 g. The level of retinal detachment varied and could have been caused by hypergravity-induced high intraocular pressure. Regeneration (when it could be assessed) proceeded asynchronously,

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