NEOTENY IN URODELA

Neoteny refers to the retention of a larval or embryonic trait in the adult body.

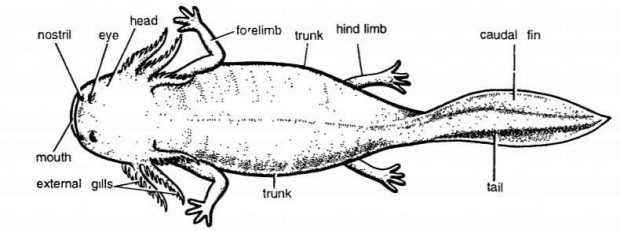
i. The most informative examples of neoteny among urodela are provided by ***Ambystoma***.
ii. The larva of ***Ambystoma*** is called **Axolotl**.
iii. It is commonly called **Mexican walking fish**.
iv. It is found in the mountain regions of **Mexico**.
v. Ordinarily they go through typical gilled aquatic larval stages, then metamorphosis, to transform into adult air-breathing land forms.
vi. However, under certain circumstances, the larvae do not metamorphose, retain their gills and aquatic habitat but become sexually mature.
vii. This sexually mature, but morphologically immature larval stage, with external gills is called an **Axolotl**.

Environmental factors affecting Paedogenesis and Neoteny

The following factors may cause **failure of metamorphosis** and retention of larval characters

- Abundance of food
- cold temperature
- insufficient iodine

Axolotl



The factors which **induce metamorphosis** are

- Drying up of the swamps
- Lack of food
- Rise in temperature in the surrounding water

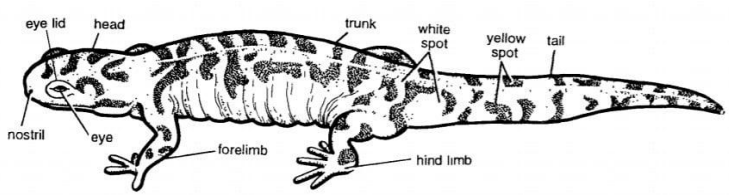
Axolotls breed in **Mexico and south-western parts of USA**. When transferred to the eastern states, or experimentally treated with **thyroxine** or TSH, these axolotls lose their gills, assume lungs and become adult air-breathing native tiger **Salamanders**.

Extrinsic factors

i. Abundance of food cause retention of larval features
ii. Deepwater and coldness inhibits the secretion of thyroxine
iii. Saline nature of water is responsible for neoteny
iv. Low temperature is responsible for the arrest of metamorphosis

Intrinsic factors

i. Low levels of thyroxin in the body.
ii. Irresponsiveness of the larval tissues to the hormones
iii. High level of prolactin inhibits the overall control of metamorphosis.



Ambystoma