

RISHI BANKIM CHANDRA COLLEGE FOR WOMEN

DEPARTMENT OF ZOOLOGY

CLASS NOTES BY NANDINI PAL

3RD SEMESTER HONOURS , PAPER CODE- ZOOACOR05T(CHORDATES)

FEEDING IN BRANCHIOSTOMA

Introduction:

Ciliary process of feeding in lower chordates are very much complicated phenomenon and a comprehensive expression of it can be had from the study of pharynx and ciliary mode of feeding or filter feeding in Branchiostoma (Amphioxus).

Historical Background:

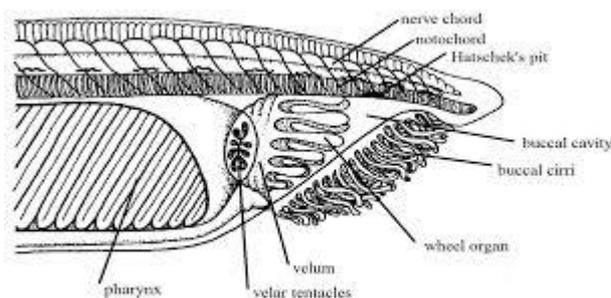
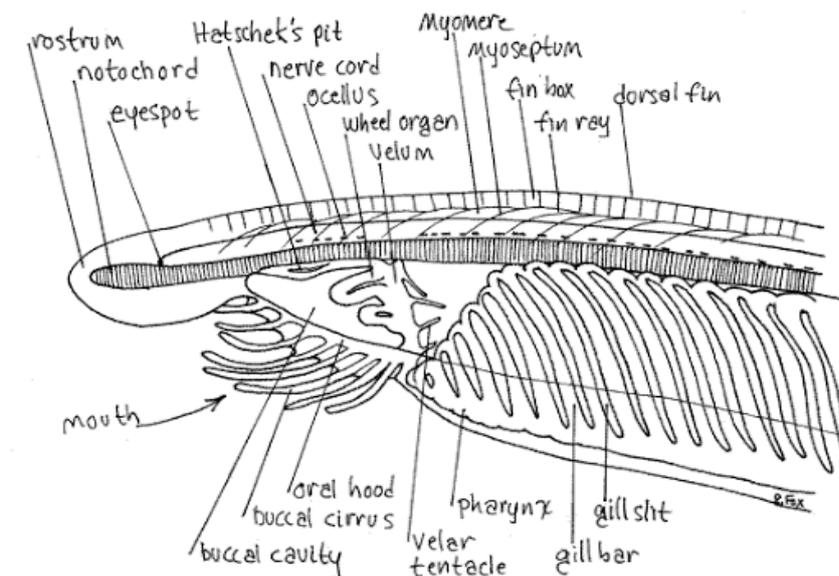
Barrington (1965) has elaborately described the process of feeding in Branchiostoma.

Feeding Mechanism:

- According to Orton (1913), the movement of water in oral hood becomes slack in some places and the large and heavy particles, also sand particles fall out inward the water current. therefore filtered from the current of water entering pharynx through mouth.
- The buccal cirri form a fine mesh which prevent the entry of these particle.
- Then velar tentacles also filter again the water current while passing through the enterostomes.
- Thus, after filtering , only the fine food particles can enter the pharynx.
- These fine and filter food particles are trapped by the mucous secreted by Hatschek's pit and pushed through enterostome into the pharynx by the whirling action of the wheel organ.
- The outward beating of lateral cilia and also the beating of atrial cilia drive the water current through gill slits into atrium and finally passing out through atriopore.

- Inside the pharynx, the food particles mix with the mucous secreted by the endostyle and pharyngeal epithelium.
- The endostylar cilia and the frontal cilia of gill bars beat upwards and the mucous mixed food particles move dorsally to the epipharyngeal groove and finally settles down in the prebranchial region of pharynx.
- Then, with the help of the peripharyngeal cilia, the mucous mixed food reach the oesophagus forming a narrow food cord.
- The overall mechanisms becomes more perfect by the event of the water current which produce by wheel organ and food particles with the help of chemoreceptor present on the buccal cirri and velar tentacles.

Comment: Thus it is seen that by the co-ordinate actions of buccal cirri, wheel organ, velar tentacles and cilia of food particles are maintained through the pharynx. So, Branchiostoma can be called as mucous ciliary filter feeder.



Digestive system

- The large mouth lies under the rostrum and opens into a spacious buccal cavity. The mouth is surrounded by a ring of tentacle-like buccal cirri (=oral cirri). These are involved in preliminary mechanical sorting of food particles and are probably chemoreceptive as well. The roof and walls of the buccal cavity form the oral hood. The trunk contains most of the gut, including the large conspicuous pharynx and the musculature.

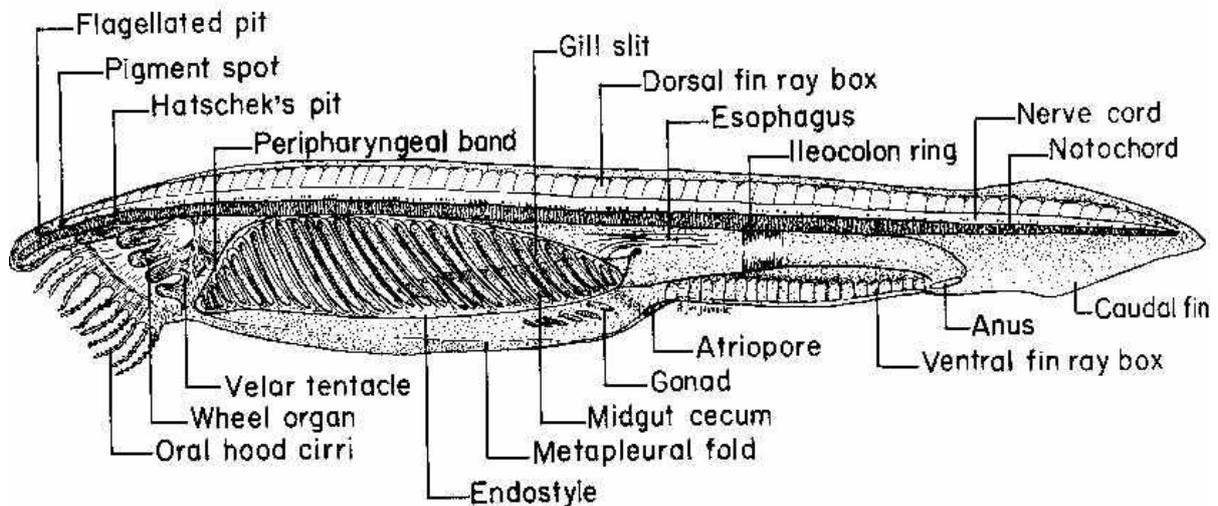
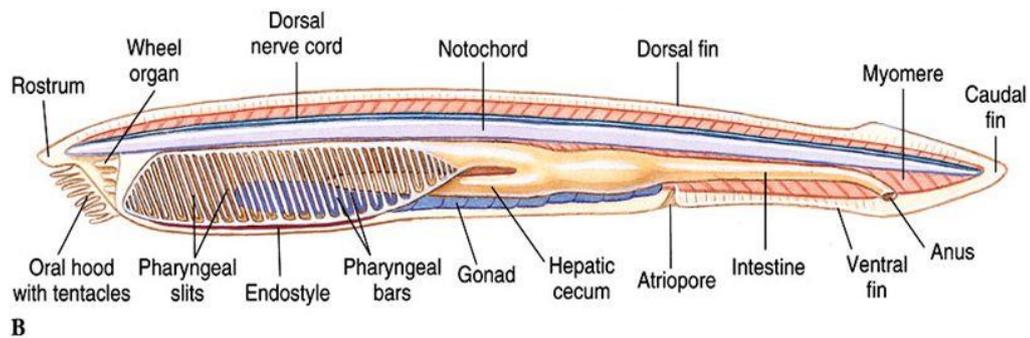


Figure 1-4. A lateral view of a whole mount slide of a young specimen of *Amphioxus*.