

Biology 505
Biology of Invertebrate Animals

Study Guide # 13

Annelida - Chapter 13.

Introduction

Form and Function

Segmentation and Body Wall

Define segmentation or metamerism.

Where are new segments formed? Where is the growth region?

What are chaetae?

Nervous System

Contrast the annelid-arthropod innervation pattern with that of vertebrates.

What is the adaptive function of the giant axons in the ventral nerve cord of annelids?

Coelom and Hemal System

What is the importance of the septa in metamerism?

Where are chloragogen cells located and what is their function?

What are the major functions of the coelomic fluid?

What are the major blood vessels found in annelids?

Excretory System

How is the nephridial system designed and how does it function?

Class Polychaeta

How diverse is this Class?

Form and Function

The most distinguishing characteristic of the Polychaeta is the _____. This structure is _____ which means that it is divided into two major parts which are known as the _____ and the _____. Both are supported by internal rods called _____.

What are the two major ecological groupings of Polychaetes?

Distinguish between "slow crawling" and "rapid crawling" in polychaetes.

Do burrowers have well-developed parapodia and prostomial sense organs?

What are nuchal organs?

In which group of polychaetes are eyes most developed?

Nutrition

Distinguish between direct deposit feeding and indirect deposit feeding.

Are all carnivores errant species?

Gas Exchange

What structures are used for gas exchange among the polychaetes?

Internal Transport

What are the three blood pigments found among the polychaetes?

Reproduction

Summarize regenerative abilities and clonal reproduction in the polychaetes.

Describe the process of epitoky.

What is a palolo worm?

Describe swarming behavior in palolo worms (Samoan and West Indian).

What mechanisms appear to control swarming behavior in some polychaetes?

Population Biology

How numerous are polychaetes, in terms of both individuals and species, in some areas according to studies?

Clitellata

Both the oligochaete worms (the common earthworm is an example) and the leaches are united by the presence of a structure known as a clitellum which is important in reproduction.

What is a clitellum and what is its function?

Class Oligochaeta

Members of this Class live in what habitats?

How are oligochaetes different from polychaetes?

Locomotion

How does crawling and burrowing occur?

Nutrition and Digestive System

What is the diet of most oligochaetes?

What are the functions of the major organs of digestion?

What are calciferous glands and what hypotheses have been advanced to explain their function(s)?

What is the function of the typhlosole?

Hemal System

Summarize the nature of the hemal (circulatory) system of oligochaetes

Gas Exchange

How does gas exchange typically occur?

Excretion and Diapause

For excretion, see question above in introductory section.

Briefly explain diapause.

Reproduction and Development

Do oligochaetes have distinct gonads? (compare with polychaetes).

Are they monocious or dioecious?

Describe the process of copulation, reciprocal sperm transfer and cocoon formation in lumbricids (ie. the common earthworm, *Lumbricus*, is a member of this group).

Class Hirudinea (= Hirudinomorpha)

Introduction

How are leeches different from oligochaetes?

“Hirudinea evolution is the story of “ In other words, in what ways are they distinct from their oligochaete ancestors?

What are the two ecological groupings (i.e dietary habits) of leeches?

Locomotion

“The loss of septa, _____ and _____ in leeches is correlated with a change in locomotion from _____ burrowing to crawling or swimming. Burrowing by using the process of _____ does not occur”.

Digestion and Nutrition

What is hirudin?

“All leeches are _____ or _____ ectoparasites”.

What do predatory leeches prey on and how do they feed?

Are bloodsucking leeches usually restricted to one species of host or Class of hosts?

Describe sucking in the mammalian bloodsuckers, *Hirudo*.

Describe the relationships between bloodsucking leeches and certain species of bacteria.

How often do leeches feed and how much do they take in compared to their body weight?

How long can they go between meals?

How may have parasitic leeches evolved?

Do you see any similarity with the possible evolution of flukes from ancestral turbellarians?

End

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