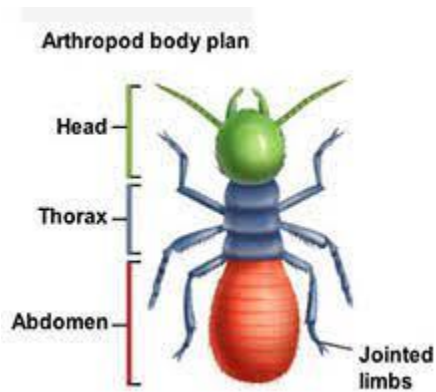


Phylum: Arthropoda

The phylum arthropoda contain of 80% of all known animals species of invertebrates whose major characteristic are hard chitinous exoskeleton segment body and jointed legs.

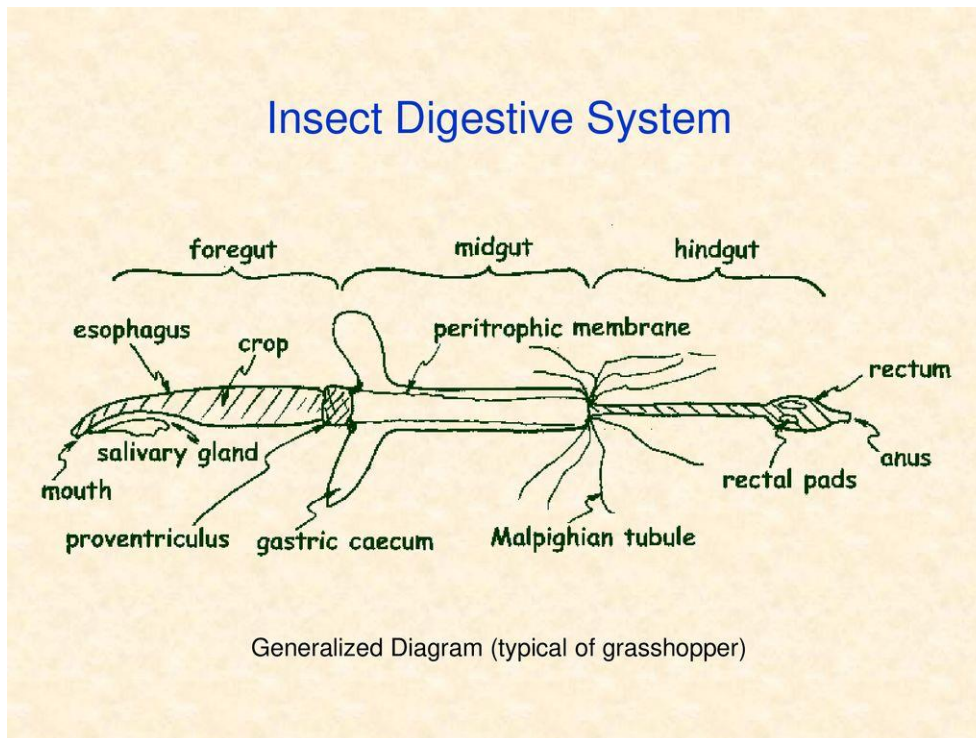
The main Structure and characters of arthropoda

- 1- The body of arthropoda is **segmented**

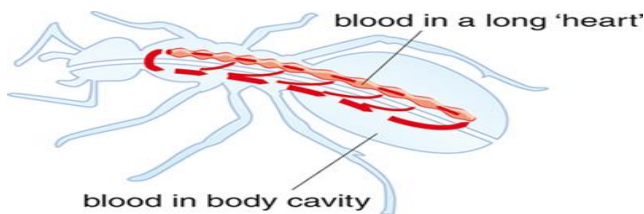


- 2- The body covered with **exoskeleton**
- 3- Alimentary canal divided into three regions:
 - a-foregut**
 - b-midgut**
 - c-hindgut**and is ended with anus.

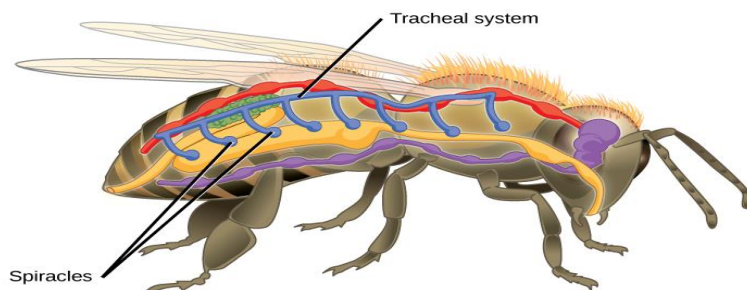
Insect Digestive System



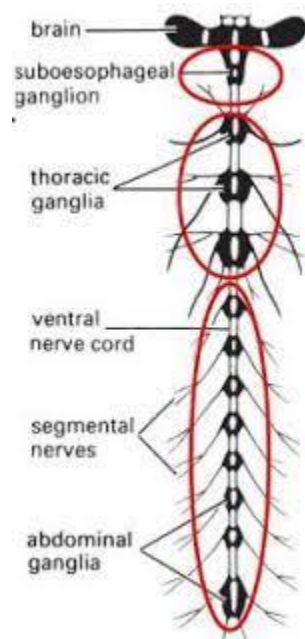
4-The circulatory system contains dorsally primitive tubular hearts, the body cavity in arthropods called **haemocoel** which contain blood.



5-Respiratory system is simple , the oxygen reach to tissue by direct **gaseous diffusion** or by **gills** or **simple trachea**.



6- The nervous system consists of ventrally situated **ganglionated nerve cord**



7-The segments of arthropoda are made up of thick chitinous plate called **sclerites** each consists from:

a-**Tegument or dorsal plate**

b-**Sternum or ventral plate**

c- **Two laterals pleurons**

8-When the arthropoda grows it becomes too big for its chitinous covering and periodically this is cast off and new exoskeleton is formed this process called **ecdysis**

9- The **sexes** in arthropoda are **separate**.

Classification of Arthropoda :The phylum arthropoda is divided into four classes

1-class **insect** like fly,lice and fleas

2-class **arachnida** like tick and mite

3-class **crustacean** like Cyclops

4-Class **myriapoda** like millipedes and centipedes

Effect of Arthropoda on their host:

1-Annoyance:

Certain arthropods cause severe annoying to human or animals because of their biting behavior. e.g. lice, flies

2- **Envenomation:** Members of several groups of arthropods can inject venom when they bite .e.g. bees, scorpion.

3-Allergic condition

Allergic reaction can occur in human and animals which exposed to certain arthropods.

4-**Food contamination with deferent pathogenic agent like cyst, oocyst ova of different parasites.**

5-**Entemophobia: Fear from arthropods.**

.

Class: Arachnida

This class includes **tick** and mites are of considerable veterinary important and also involved **spider** and **scorpions**.

The main characters of arachnida:

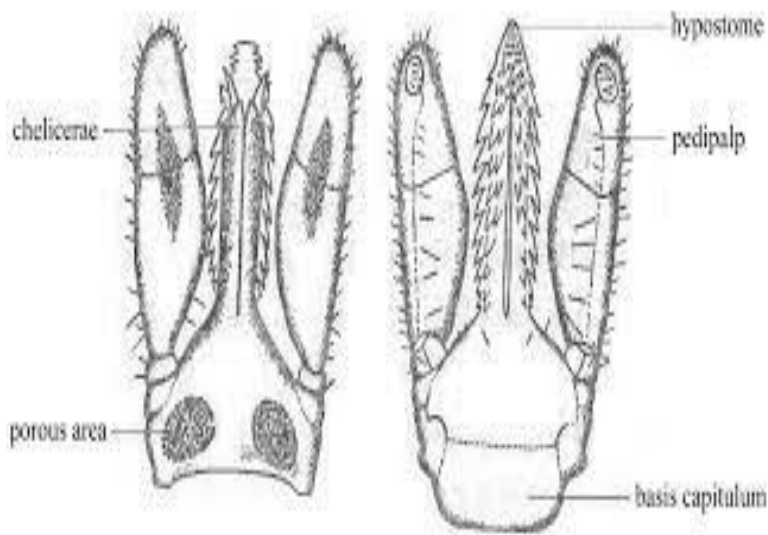
- 1- The adult **has 4 pairs** of leg
- 2- The body is composed from:
 - a- **Prosoma** in the anterior region

b- **Idosoma** in the posterior region

3-The mouth parts are extensively modified and carry two pairs of appendage.

The first called : **A-chelicerae**

The second called: **B-Pedipalp** and also have, **Hypostome**



Order: Acarina

-The acarina are small in size, some time microscopic,

- The mouth parts which are borne on the basis captuli consisting of pair of **chelicerae** with mobile digits adapted for cutting and pair of sensory **pedipalps** and also ventero-medialy **hypostome** with recurved teeth for maintaining position.

The acarina of veterinary importance are **ticks** and **mites** , and their life cycle

Consist from **egg** hatching to **larvae** which molting after feeding to **nymph** **and finally** to **adult** usually there is only **one larval** instar in there life cycle.

Egg----Larvae-----Nymph-----Adults

Ticks:

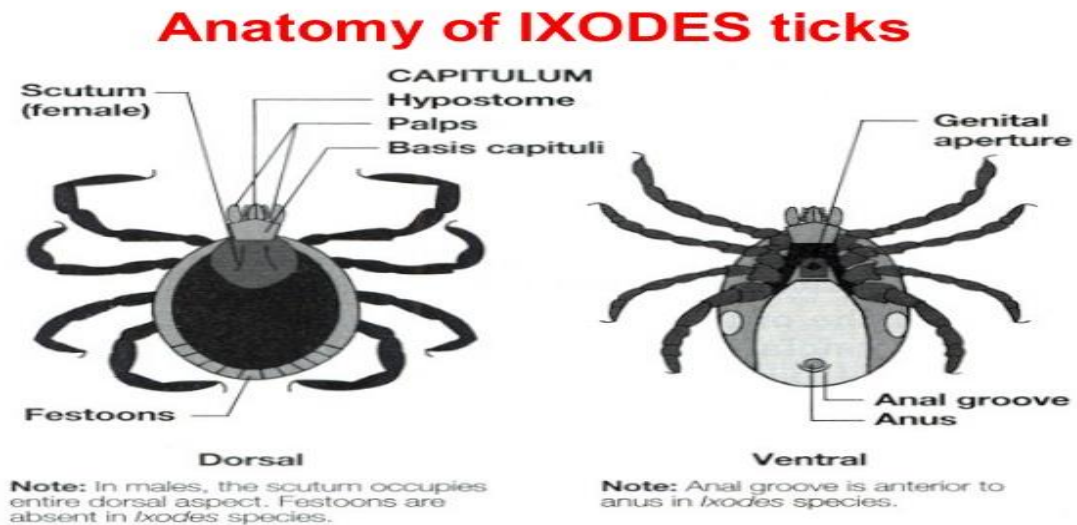
Two familes:

1-Ixodidae----- **hard ticks**

2-Argasidae-----**soft ticks**

The most important is the ixodidae often called hard ticks because of the presence of **chintinous ,scutum** which cover the entire dorsal surface of the adult male.

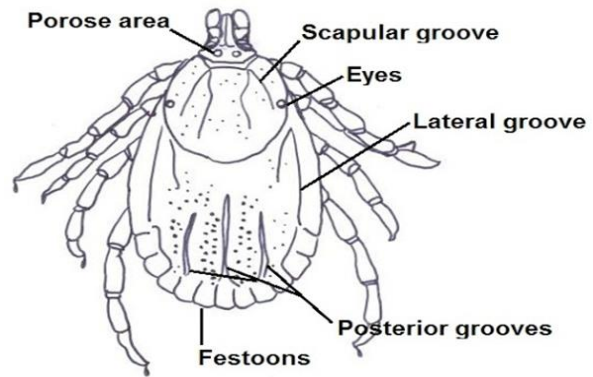
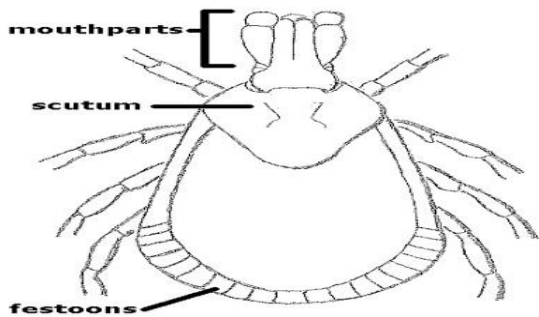
*In the adult female and larvae and nymph the scutum it extends for only asmall area which permits the abdomen to swell after feeding..



*The other family is the argasidae or soft ticks because the **lack a scutum** and has **leathery body**.

Main characters of different hard ticks.

Tick spp	Mouth parts	Eyes	Festoon
<i>Ixodes</i>	Long	absent	absent
<i>Hyalomma</i>	Long	present	present
<i>Rhipicephalus</i>	Small	present	present
<i>Boophilus</i>	Small	present	absent



Ixodes tick



Hyalomma tick



Boophilus



Rhipicephalus