# Classifications of parasites and protozoa

-Important -Extra -Notes

-In male's slides -In female's slides

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MICROBIOLOGY TEAM 438

# Objectives:

- ★ **Define common terms describing host-parasite relationship.**
- ★ **Outline the broad classification of parasites .**
- ★ **Name examples of protozoan parasites .**
- ★ **Describe the life-cycle of *Giardia Lamblia* as an example of intestinal protozoa .**
- ★ **Describe the main stages of life-cycle of *Plasmodium* as an example of blood protozoa .**

# Definitions

Infection : The entry , development and multiplication of an **infectious agent** in the body of humans or animals .
The result may be :
- inapparent ( asymptomatic) infection
- manifest (symptomatic) infection

Host: human or animal which **harbors** an **infectious agent** under natural conditions .

Definitive host (primary host) : a host in which the parasite passes its **sexual stage**

Intermediate host (secondary host) : a host in which the parasite passes its **larval** or **asexual stages**.

Carrier: a person or animal that harbors a specific infectious agent in the **absence of symptoms and signs** of a disease and serves as a **potential source of infection**

# Definitions

Pathogenesis : Production and development of disease .

Pathogenicity: Capability of an infectious agent to cause disease in a **susceptible** host .

Parasitism: a relationship in which an organism ( infectious agent , **the parasite**) **benefits** from the association with another organism ( the host ) whereas the **host is harmed** in some way.

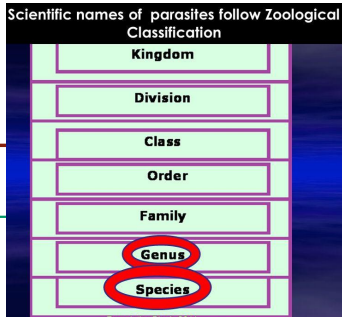
Commensalism: Kind of relationship in which one organism ( **the commensall** ) is **benefited** whereas the **host** is **not harmed or** even **helped** by the association .

Ectoparasite: parasite that lives **on** the **outer surface** of its host .

Endoparasite: Parasite that lives **inside** its host .

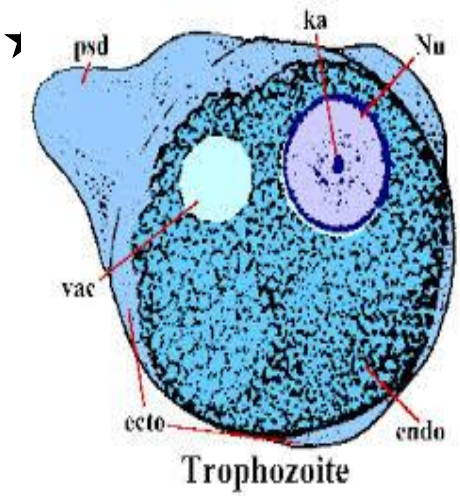
zoonosis: Disease of animals that is **transmissible** to humans .

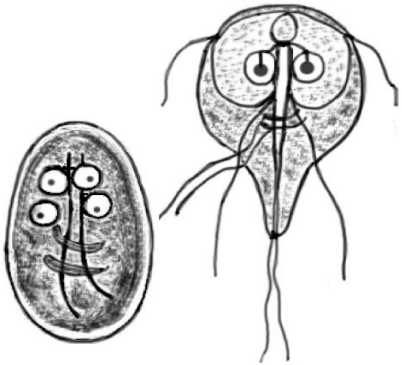
# CLASSIFICATION OF PARASITES

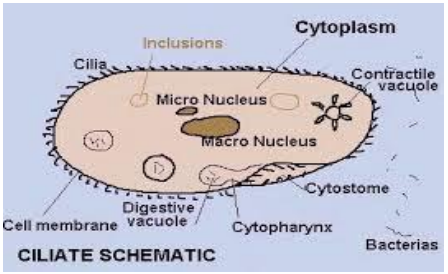



| PROTOZOA | HELMINTHS |
|---|---|
| Unicellular<br>Single cell of all functions | Multicellular<br>Specialized cells |
| 1- Amoebae : move by pseudopodia<br>2- Flagellates : move by flagella<br>3- ciliates : move by cilia<br>4- apicomplexa ( sporozoa ) tissue parasite | - **Round worms ( Nematodes ):**<br>Elongated , cylindrical , unsegmented .<br>- **Flat worms :**<br>**1- Trematodes** : leaf –like , unsegmented<br>**2- Cestodes** : tape-like , Segmented |

This slide was found only in female's slides.





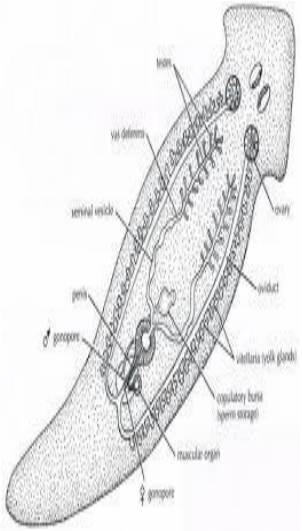

**Amoebae** **Flagellates** **Ciliates**

Round worm

( nematodes)

flat worm

(cestodes)

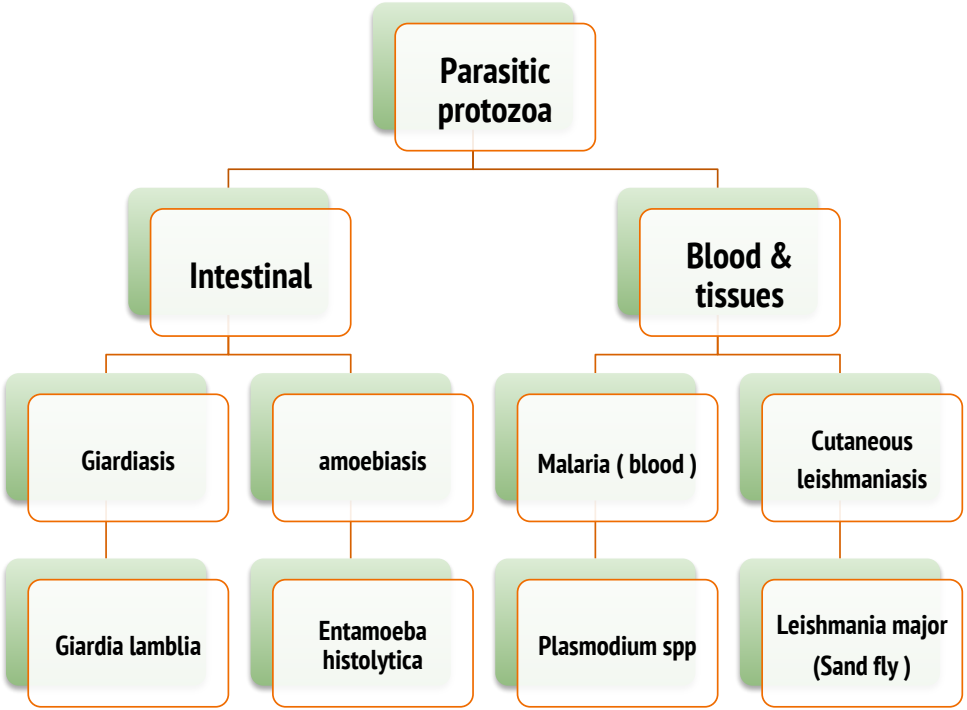



flat worm

(trematodes)

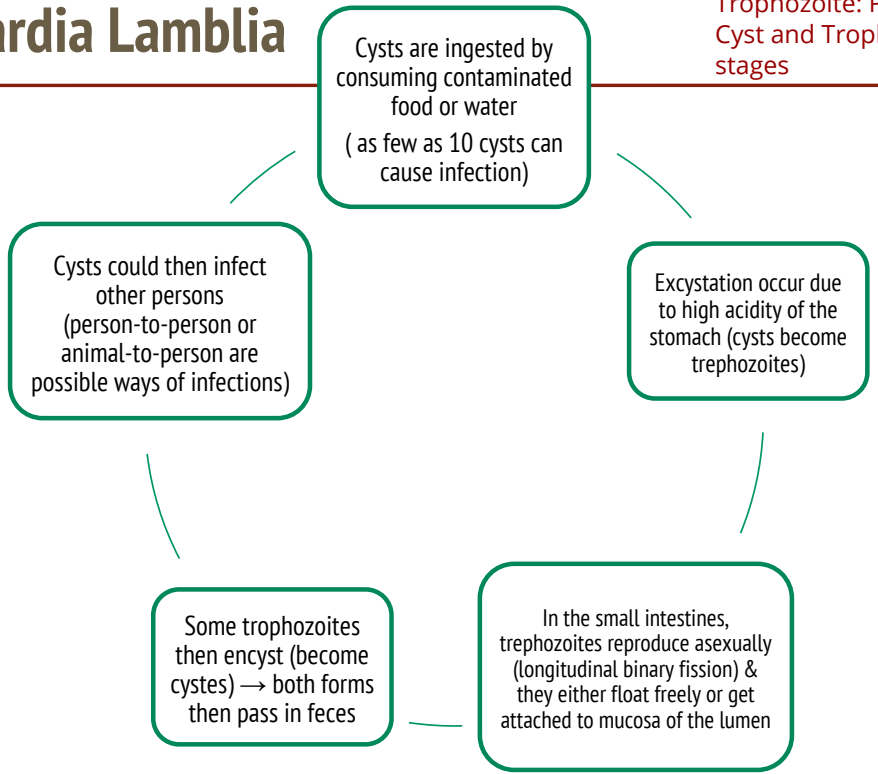
# Parasitic protozoa

- Location
- Disease
- Parasite ( cause the disease )



# Life cycles: Giardia Lamblia

Cyst: infective stage
Trophozoite: Pathogenic stage
Cyst and Trophozoite are both diagnostic stages



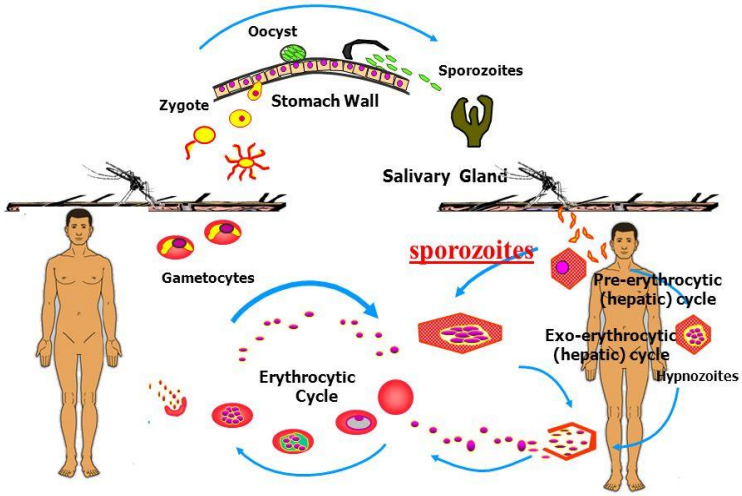

- Infect cells of duodenum and jejunum.
- Lead to diarrhea, poor absorption of nutrient, loss of appetite, stomach cramp, and vomiting.

- Cysts can survive outside the body for several months
- Cysts are also relatively resistant to chlorination, UV exposure and freezing

# Malaria Species

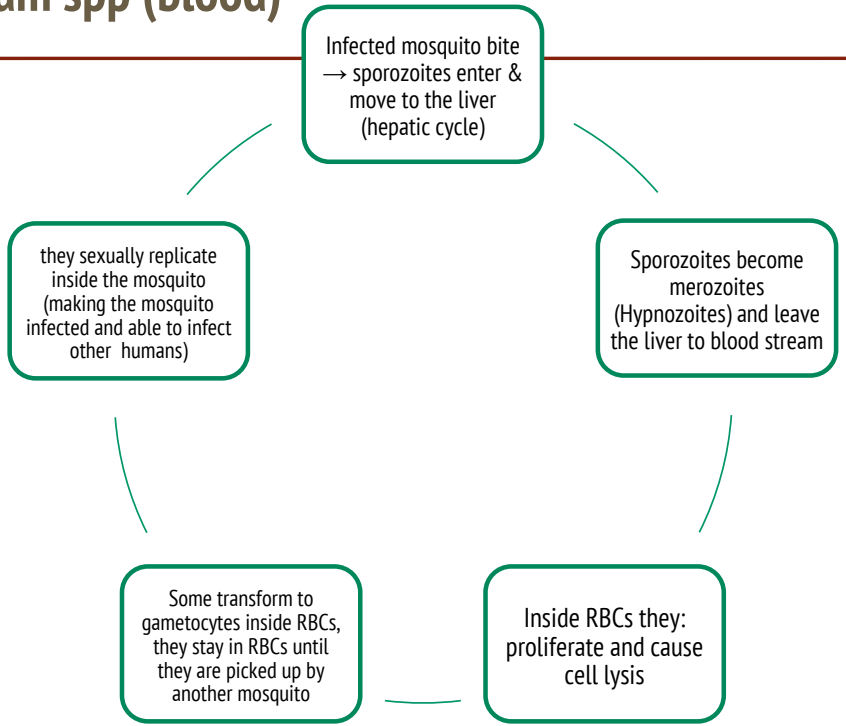
★ **FOUR MAIN SPECIES OF MALARIA :**

- **1- Plasmodium falciparum**
- **2- Plasmodium vivax**
- **3- Plasmodium ovale**
- **4- Plasmodium malariae**



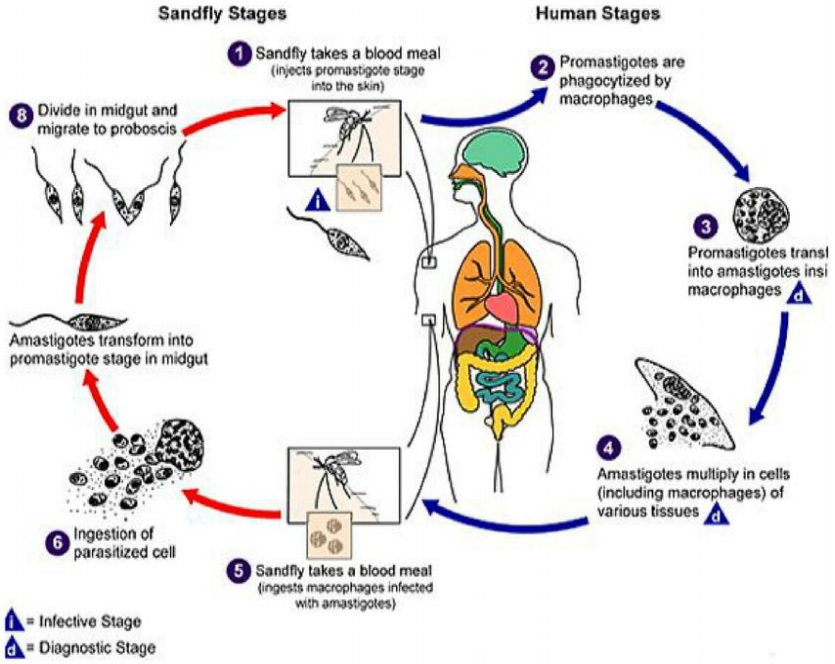
# Life cycles: Plasmodium spp (blood)

- Primary host: mosquito
- Secondary host: human
- Infective stage (for human): sporozoites
- Infective stage (for mosquitos): Gametocytes



# Life cycle: Leishmanial major (tissue)

- ★ Vector: sandfly
- ★ Infective stage: promastigotes
- ★ Diagnostic stage: Amastigmotes



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- دينا عورتاني
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