

General Stool Examination (GSE)

A stool analysis is a series of tests done on a stool sample to help diagnose certain conditions affecting the digestive tract , these conditions can include infection (such as from Parasites, Viruses, or Bacteria), poor nutrient absorption, or cancer.

- Collection of Specimens :-

- 1- Collect stool into a clean, dry container and deliver the specimen to the lab immediately.
- 2- Label the container with name patient and the date.
- 3- Specimens must not be contaminated with water (contain many microorganisms) or urine (killed the motility of microorganisms).
- 4- During collection of specimens the patient must leave the treatment for (72 hour) before analysis.

- General Stool Examination divided into :-

1// Macroscopic Examination

A- Chemical Examination :

*** PH :**

- Normal: The normal PH of the stool is 7.0 – 7.5.
- Abnormal: Stool with a high PH may mean inflammation in the intestine (colitis), cancer, or antibiotic use. A low PH may be caused by poor absorption of carbohydrate or fat.

B- Physical Examination :

1- Color :

Normal: Brown (deep or light)

Abnormal:

- Bloody (infection with *Entamoeba histolytica*).
- Milky or like rice water (infection with *Vibrio cholera*).
- Greenish with mucus (infection with *Giardia lamblia*).
- Black (occult blood) (some cases may be cancer).

2- Consistency:

Normal: Semi Solid

Abnormal: Liquid, Semi liquid and Solid.

3- Blood:

The blood appear in pathogenic cases only, it may be:

- a- Flashing blood:** These cases may be a result of injury in the last part of digestive system or hemorrhoids near the anal opening.
- b- Lytic blood:** mixed with the spacemen, this may be mean dysentery (bacterial or parasitic).

4- Mucus:

Normal: The stool does not contain mucus.

Abnormal: small amount may refer to infection in small intestine.

Large amount not well mixed with stool may indicate lesion in large intestine by *Giardia lamblia*.

Large amount mixed with stool + blood streak = amoebic dysentery.

Mucus + blood + pus = ulcerative colitis and bacillary dysentery.

2// Microscopic Examination:-

This examination used for differentiation between parasite (trophozoite, cyst and ova), candida, pus cell, RBCs, indigestive foodetc.

There are two ways for examination:-

1- Direct smear (Wet Mount Procedure):

- a- Take a clean and dry slide.
- b- Place one drop each of normal saline in one side of the slide and drop of iodine in other side.

- c- Hold a small piece of stool sample by using a stick (the emulsion should not be too thick or too thin), mix it with saline, and another small piece mixed with iodine.
- d- Cover two sides with cover slides and examine by using the microscope.

2- Concentration techniques:-

a- Sedimentation techniques: in this method cysts and eggs of parasites settle and are concentrated at the bottom because they have greater density than the suspending medium. Following are the commonly used sedimentation techniques:

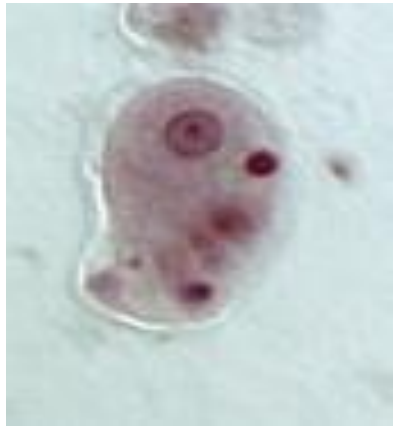
- Simple sedimentation
- Formalin – ether sedimentation

b- Floatation techniques: Floatation involves suspending the specimen in a medium of greater density than of the helminthic eggs and protozoan cysts. Following floatation techniques can be used:

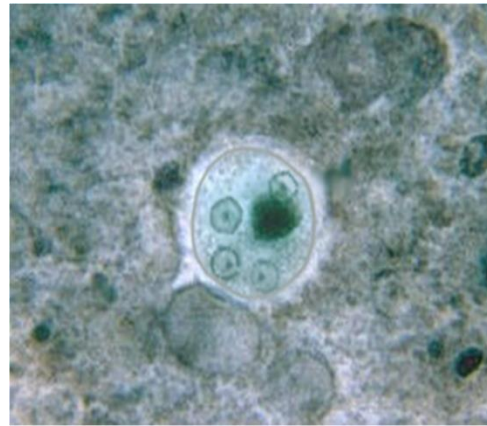
- Saturated salt floatation technique
- Zinc sulphate centrifugal floatation technique
- Sheather's sugar floatation solution

- We may see in stool smear:-

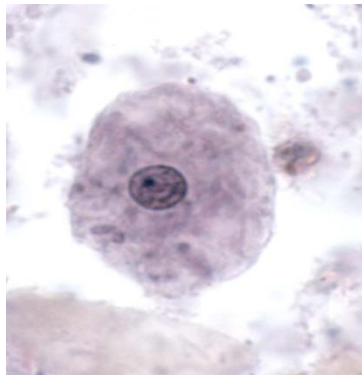
- Pus (WBC's) in stool.
- RBC's in stool.
- Microorganisms:
 - a- Parasites: such as [*Entamoeba histolytica* (Trophozoite, cyst), *Entamoeba coli* (Trophozoite, cyst), *Giardia lamblia* (Trophozoite, cyst), *Balantidium coli* (Trophozoite, cyst)].
 - b- Ova: such as such as (*Enterobius vermicularis*, *Ascaris lumbricoides*, *Taenia* spp., *Trichuris trichura*, Hook worm).
 - c- Bacteria .
 - d- Candida.
- Indigestive food
- Fat droplets
- Fibers, Bubbles (air or oil).



E. histolytica (Trophozoite)



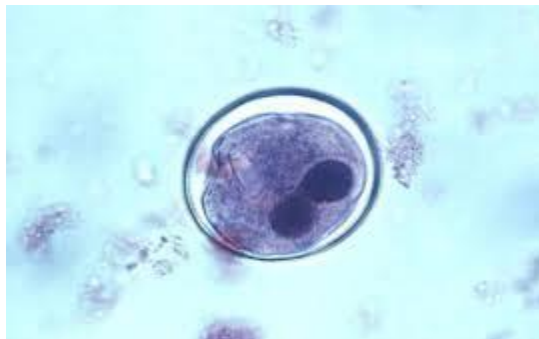
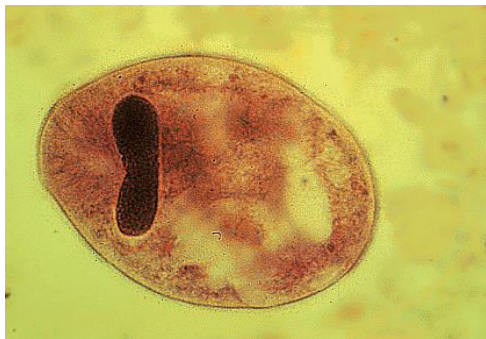
E. histolytica (cyst)



E. coli (Trophozoite)



E. coli (cyst)



***B. coli* (Trophozoite)**



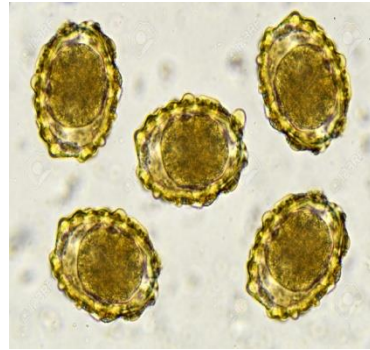
***B. coli* (cyst)**



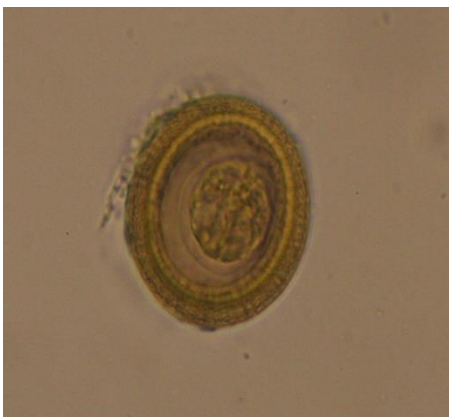
***G. lamblia* (Trophozoite)**



***G. lamblia* (cyst)**



***E. vermicularis* (ova)**

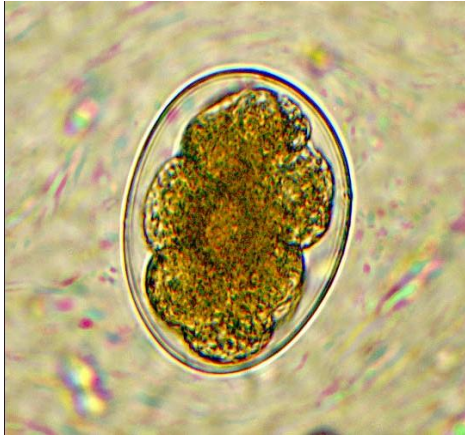


***A. lumbricoides* (ova)**



***Taenia* spp. (ova)**

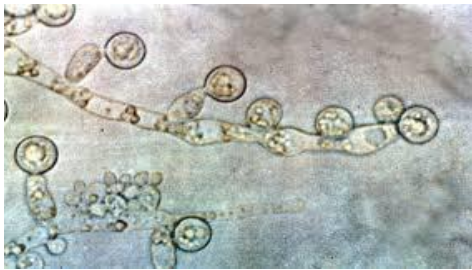
***T. trichura* (ova)**



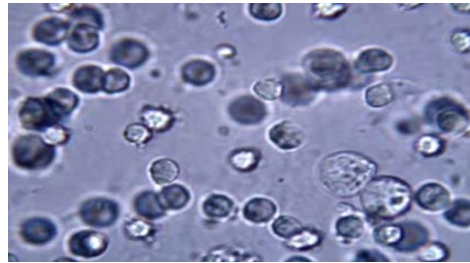
Hook worm (ova)



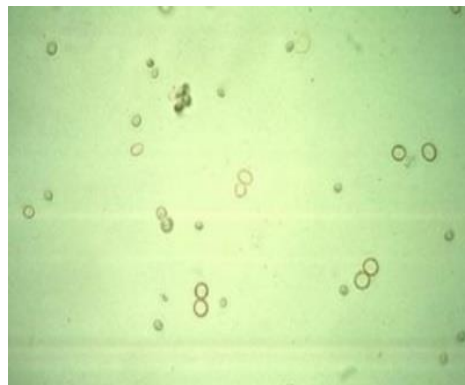
Bacteria in stool



Candida in stool



Pus in stool



RBCs in stool