

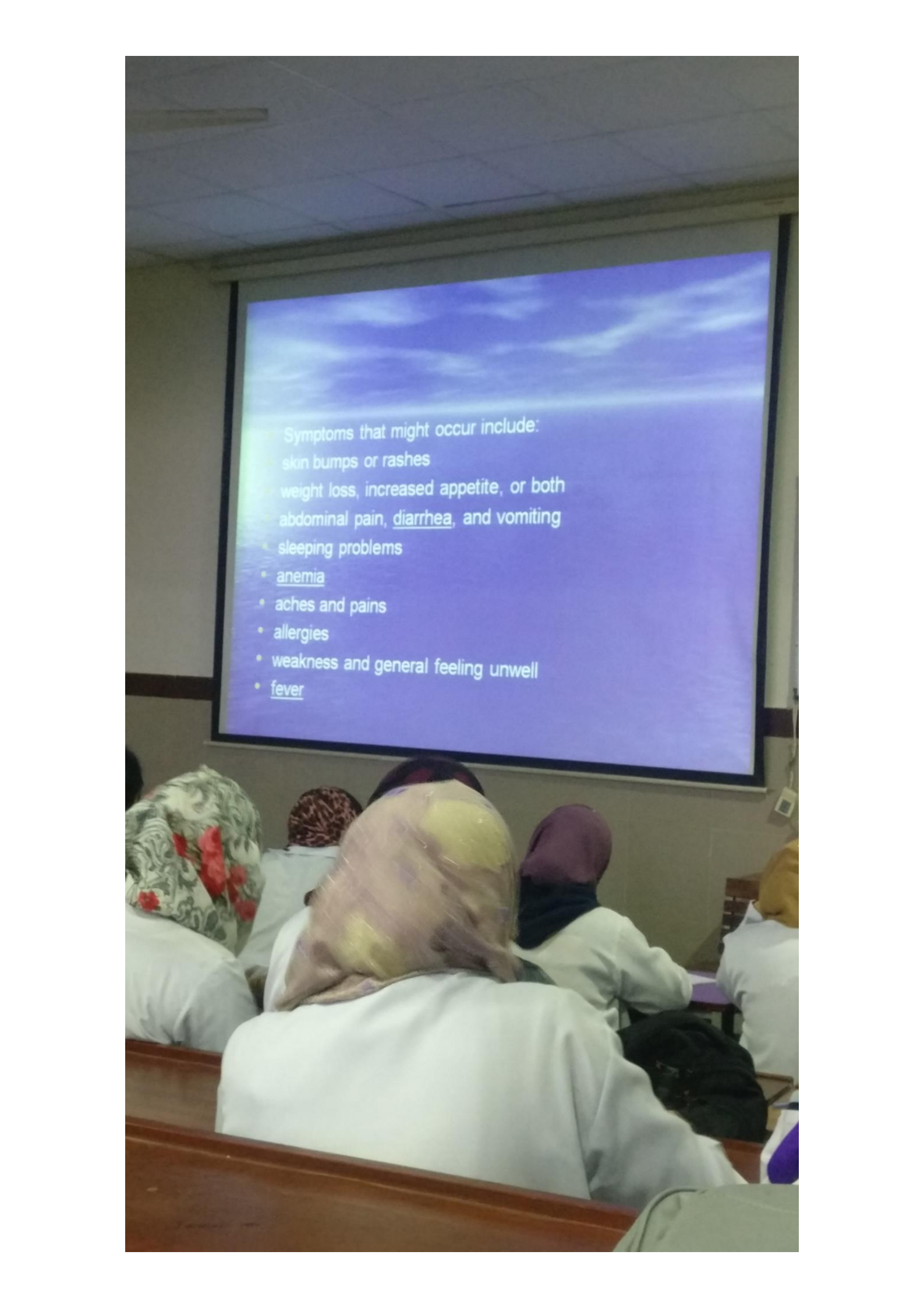
Introduction

A parasite is an organism that lives within or on a host.
The host is another organism.
Parasites vary widely. Around 70 percent are not visible to the human eye, such as the malarial parasite, but some worm parasites can reach over 30 meters in length.



Types.

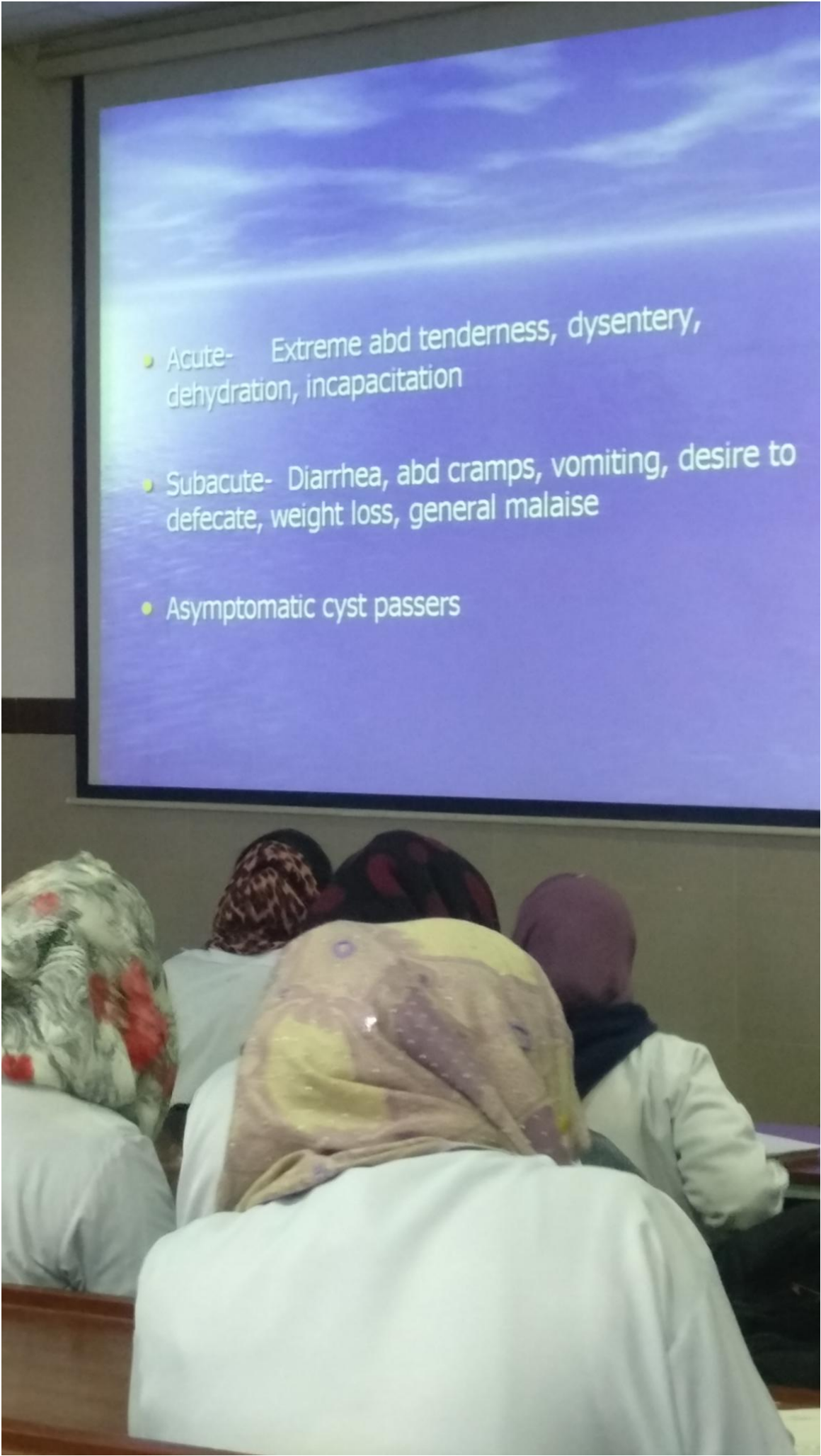
- **Protozoa:** Examples include the single-celled organism known as Plasmodium. A protozoa can only multiply, or divide, within the host.
- **Helminths:** These are worm parasites. Schistosomiasis is caused by a helminth. Other examples include roundworm, pinworm, trichina spiralis, tapeworm, and fluke.
- **Ectoparasites:** These live on, rather than in their hosts. They include lice and fleas.

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- The image shows a classroom or lecture hall from the perspective of someone in the audience. In the foreground, the backs of several students are visible; they are wearing white lab coats and various colored hijabs (yellow, purple, patterned). They are seated in wooden desks, facing a large projection screen at the front of the room. The screen displays a presentation slide with a blue background and white text. The text lists symptoms that might occur, including skin bumps, weight changes, abdominal pain, diarrhea, vomiting, sleeping problems, anemia, aches, allergies, weakness, and fever. The room has a drop ceiling and a light-colored wall.
- Symptoms that might occur include:
 - skin bumps or rashes
 - weight loss, increased appetite, or both
 - abdominal pain, diarrhea, and vomiting
 - sleeping problems
 - anemia
 - aches and pains
 - allergies
 - weakness and general feeling unwell
 - fever

Entamoeba Histolytica

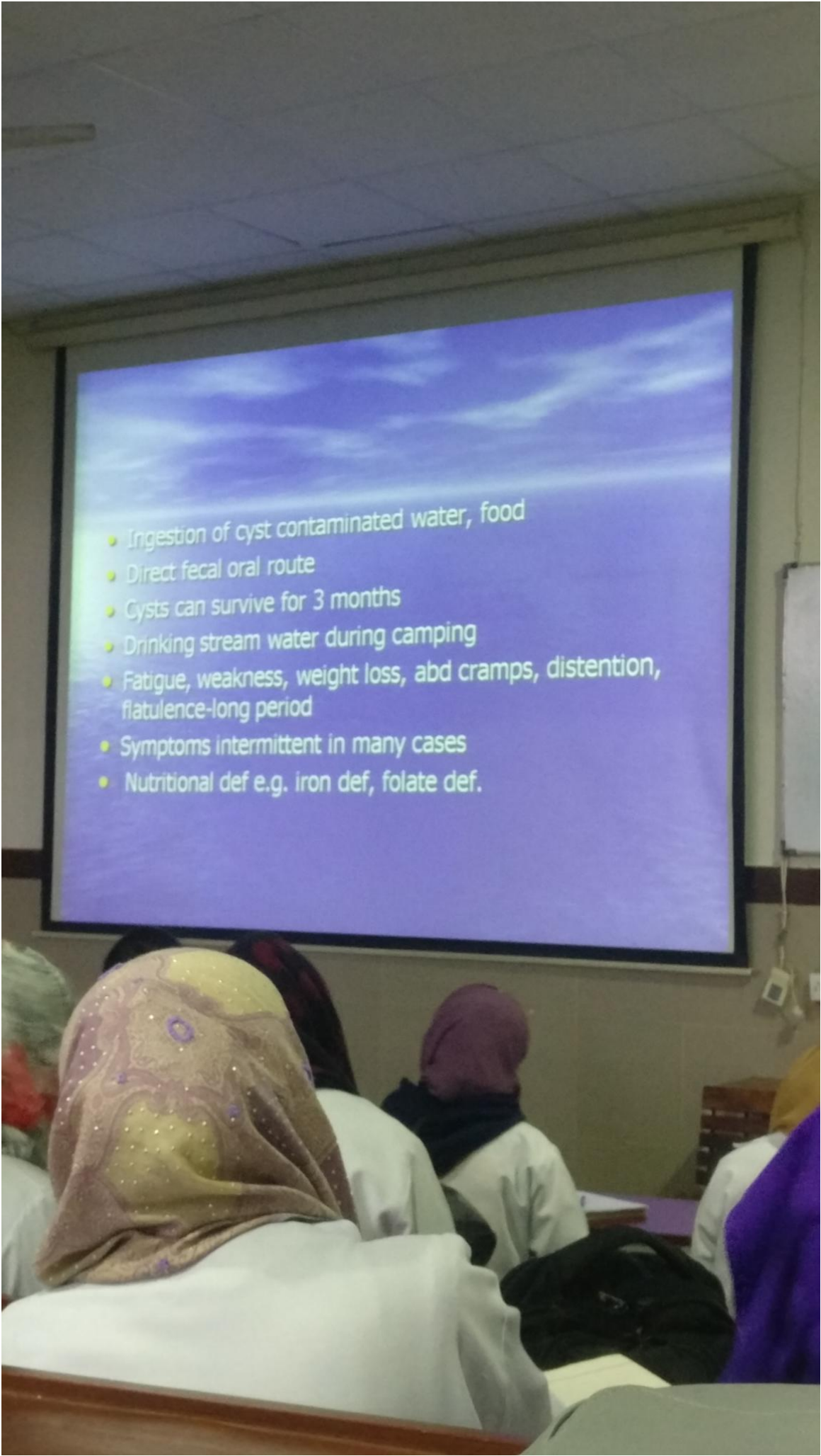
- Worldwide-common infection
- Trophozoites attach large gut
- Flask shape ulcers
- Mucus, epith cells, pus cells, amoeba pass in stool
- Feco-oral route
- Poor sanitation & hygiene
- Cyst ingested-contaminated water, veg, fruits, flies



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- The image shows a classroom from the back of the room. Several students, mostly women wearing hijabs, are seated and looking towards a large projection screen. The screen displays a presentation with a blue background and white text. The text is organized into three bullet points. The students are wearing white lab coats or uniforms. The hijabs are in various colors, including floral patterns, solid colors, and one with a yellow and purple design. The screen is mounted on a wall, and the room appears to be a lecture hall or a medical classroom.
- Acute- Extreme abd tenderness, dysentery, dehydration, incapacitation
 - Subacute- Diarrhea, abd cramps, vomiting, desire to defecate, weight loss, general malaise
 - Asymptomatic cyst passers

Giardia Lamblia

- Common pathogen of duodenum & jejunum
- Trophozoite heart shaped sucking disc-attachment to villi
- Does not invade, but attachment cause irritation, inflammation of duodenum/ jejunum
- Crypt hypertrophy, villous atrophy/ flattening, epith cell damage
- Asymptomatic- if light infection
- Acute/ chronic diarrhea- in heavy infection
- Stool bulky, watery, semisolid, greasy, foul smelling- Mal-absorption

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- Ingestion of cyst contaminated water, food
 - Direct fecal oral route
 - Cysts can survive for 3 months
 - Drinking stream water during camping
 - Fatigue, weakness, weight loss, abd cramps, distention, flatulence-long period
 - Symptoms intermittent in many cases
 - Nutritional def e.g. iron def, folate def.

Ascaris lumbricoide

- Large worm.
- Ingestion of eggs
- Larva hatch, heart lung cycle, reenters intestine-mature into adults
- Eggs passed in stool
- **Eggs infective after 1 month till many months**
- Very common world wide
- Poor sanitation & hygiene

Larval migration in lung-irritation, mucus production,
wheeze (Loeffler's syndrome)

Adults- mechanical obstruction of gut, appendicitis,
pancreatitis,

Abdominal pain, vomiting,

Anemia

Enterobius vermicularis

- Female **pinworms** about 10 mm in length
- Worldwide, mostly children
- perianal pruritus, especially at night
- female worms migrate down from the colon at night & lays egg-severe itch
- Scratching the anal region promotes transmission
- eggs are highly infectious within hours of being laid (hand-to-mouth transmission)
- Irritability and fatigue from loss of sleep

DIAGNOSIS

STOOL MICROSCOPY

- Most important and very cheap method of diagnosing parasitic infestation of GIT

Naked eye examination-worm in stool e.g. *Ascaris lumbricoides*, *Taenia saginata/solium* etc.

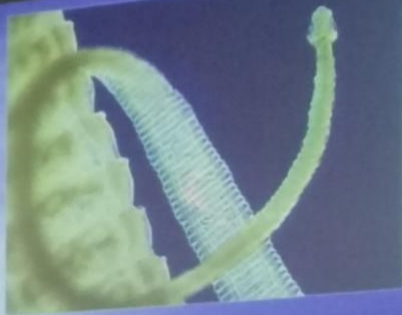
Blood, mucus in dysentery

Wet film examination-

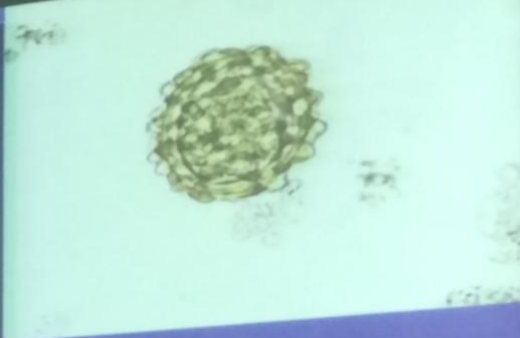
motile trophozoites and cysts of *Giardia lamblia*, *Entamoeba histolytica*, RBCs, WBCs, ovum of hookworm, *Ascaris*, *Taenia* spp.

Iodine stained examination-
better visualization of cysts of Giardia, Entamoeba

Modified ZN stain- Oocysts of Cryptosporidium



Tapeworm



Giardia lamblia trophozoite

Upper GI Endoscopy

Biopsy examination for Giardia, Cryptosporidium

"Scotch tape" test for Enterobius vermicularis ovum

Serological Tests ELISA

Giardia lamblia, Entamoeba histolytica etc.

Antigen detection