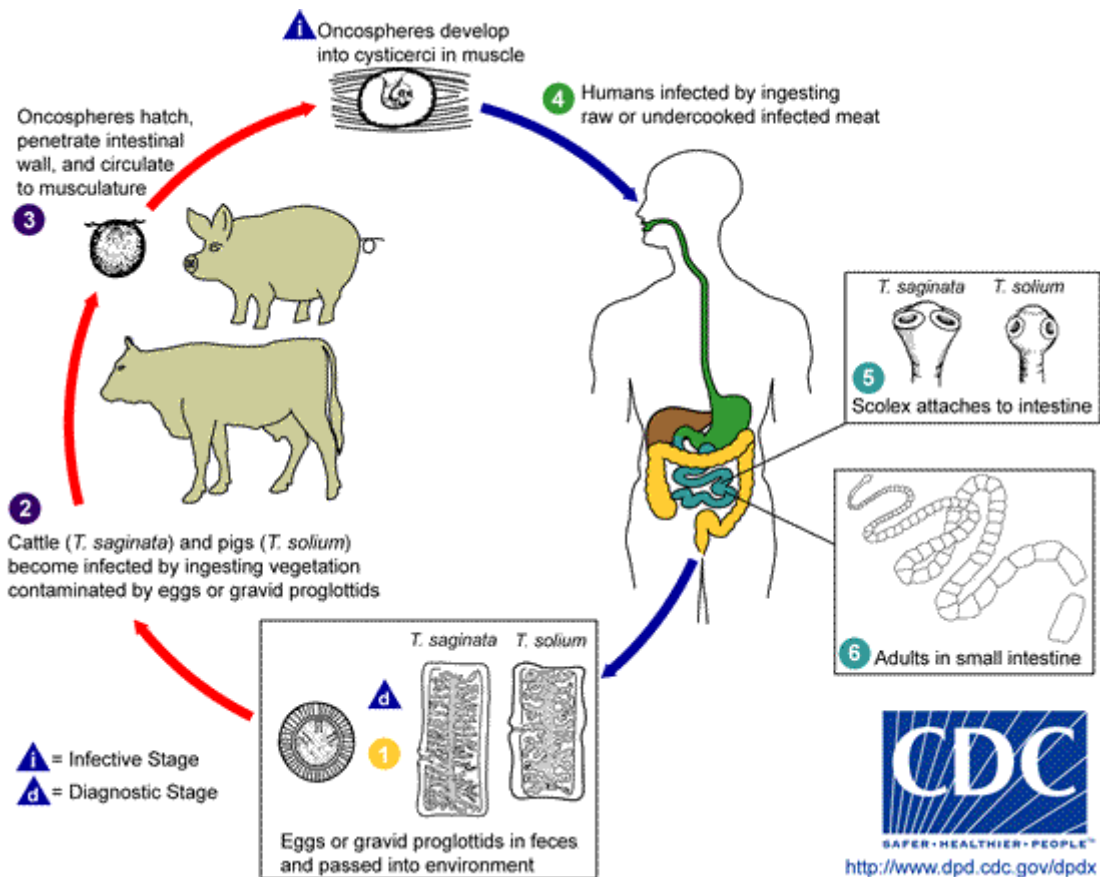


# Taeniasis

## Causal Agents:

The cestodes (tapeworms) *Taenia saginata* (beef tapeworm) and *T. solium* (pork tapeworm). *Taenia solium* can also cause cysticercosis.

## Life Cycle:



## Life cycle of *Taenia saginata* and *Taenia solium*

Humans are the only definitive hosts for *Taenia saginata* and *Taenia solium*. Eggs or gravid proglottids are passed with feces **1**; the eggs can survive for days to months in the environment. Cattle (*T. saginata*) and pigs (*T. solium*) become infected by ingesting vegetation contaminated with eggs or gravid proglottids **2**. In the animal's intestine, the oncospheres hatch **3**, invade the intestinal wall, and migrate to the striated muscles, where they develop into cysticerci. A cysticercus can survive for several years in the animal. Humans become infected by ingesting raw or undercooked infected meat **4**. In the human intestine, the cysticercus develops over 2 months into an adult tapeworm, which can survive for years. The adult tapeworms attach to the small intestine by their scolex **5** and reside in the small intestine **6**. Length of adult worms is usually 5 m or less for *T. saginata* (however it may reach up to 25 m) and 2 to 7 m for *T. solium*. The adults produce proglottids which mature, become gravid, detach from the tapeworm, and migrate to the

anus or are passed in the stool (approximately 6 per day). *T. saginata* adults usually have 1,000 to 2,000 proglottids, while *T. solium* adults have an average of 1,000 proglottids. The eggs contained in the gravid proglottids are released after the proglottids are passed with the feces. *T. saginata* may produce up to 100,000 and *T. solium* may produce 50,000 eggs per proglottid respectively.

### **Geographic Distribution:**

Both species are worldwide in distribution. *Taenia solium* is more prevalent in poorer communities where humans live in close contact with pigs and eat undercooked pork, and is very rare in Muslim countries.

### **Clinical Features:**

*Taenia saginata* taeniasis produces only mild abdominal symptoms. The most striking feature consists of the passage (active and passive) of proglottids. Occasionally, appendicitis or cholangitis can result from migrating proglottids. *Taenia solium* taeniasis is less frequently symptomatic than *Taenia saginata* taeniasis. The main symptom is often the passage (passive) of proglottids. The most important feature of *Taenia solium* taeniasis is the risk of development of cysticercosis.

### **Laboratory Diagnosis:**

Microscopic identification of eggs and proglottids in feces is diagnostic for taeniasis, but is not possible during the first 3 months following infection, prior to development of adult tapeworms. Repeated examination and concentration techniques will increase the likelihood of detecting light infections. Nevertheless, speciation of *Taenia* is impossible if solely based on microscopic examination of eggs, because all *Taenia* species produce eggs that are morphologically identical. Eggs of *Taenia* sp. are also indistinguishable from those produced by cestodes of the genus *Echinococcus* (tapeworms of dogs and other canid hosts). Microscopic identification of gravid proglottids (or, more rarely, examination of the scolex) allows species determination.

**TAKE EXTREME CARE IN PROCESSING THE SAMPLES! INGESTION OF EGGS CAN RESULT IN CYSTICERCOSIS!**

### **Diagnostic findings**

- Microscopy
- **Antibody detection** may prove useful especially in the early invasive stages, when the eggs and proglottids are not yet apparent in the stools.
- Morphologic comparison with other intestinal parasites

### **Treatment:**

Treatment is simple and very effective. Praziquantel\* is the drug of choice.

\* This drug is approved by the FDA, but considered investigational for this purpose.