**Schistosoma mansoni**

**Adult**
Males of *S. mansoni* have a length of 6.4 to 9.9 mm, females, 7.2 to 14 mm. The tegument of the male is provided with numerous warty excrescences. The testes numbering 6 to 9. Form a grapelike cluster a short distance behind the acetabulum. The most striking internal feature of the female is a short uterus, containing very few eggs.

**Eggs**
*S. mansoni* eggs are relatively large, measuring 112 to 182 μm by 40 to 75 μm. the organism is somewhat oblong and possesses a prominent large lateral spine.

**Schistosoma japonicum**

**Adult**
Adult males of *S. japonicum* measure 12 to 20 mm by about 0.5 mm. The tegument is smooth. Conspicuous features of the body are the subequal oral sucker and acetabulum, the long ventral sex canal, and the relatively large testes (there are usually 7) behind the acetabulum.
Females are much more delicate, with a length of 15 to 30 mm and a breadth of 0.1 to 0.3 mm.

**Eggs**
The somewhat roundish *S. japonicum* is the smallest of the *Schistosoma* species, measuring 50 to 85 μm by 38 to 60 μm. The egg is characterized by the presence of a small lateral spine, which is often difficult to detect upon microscopic examination.

**Schistosoma haematobium**

**Adult**
The male measuring 10 to 15 mm in length by about 1 mm in greatest girth, has 4 to 5 small subglobese testes immediately formed, with a length of about 20 mm and a diameter of 0.25 mm. The genital organs exclusive of the vitellaria occupy the median longitudinal field and the uterus is long. On oviposition the eggs are immature, but when shed from the tissues and excreted, they usually have become fully embryonated.

**Eggs**
*Schistosoma haematobium* resembles *S. mansoni* in size and shape. The somewhat oblong egg measures 110 to 170 μm. The presence of a large, prominent terminal spine distinguishes the egg from the other *Schistosoma* species.
Developed miracidium

Large lateral spine

Developed miracidium

Small lateral spine (difficult to see)

Fig ( ): \textit{Schistosoma mansoni} egg.

Fig ( ): \textit{Schistosoma japonicum} egg.

Fig ( ): \textit{Schistosoma haematobium} egg.
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<td>Small: Lateral</td>
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**Life cycle**

Fully embryonated viable eggs in feces soon hatch on contact with fresh water and the miracidia attach and the miracidium enter the tissues of various snails. Where the development of a sporocyst occurs. Numerous redia result and ultimately produce many cercariae. On contact with skin the cercariae become attached, penetrate into cutaneous capillaries and begin their blood migration to mesentric vessels.

![Life Cycle: Blood Flukes](image)
Clinical symptoms

**Schistosomiasis / Bilharziasis / Swamp fever.** The first symptom experienced by most symptomatic persons infected with *Schistosoma* is inflammation at the cercariae penetration site. Symptoms of acute infection include abdominal pain, fever, and chills, weight loss, cough, bloody diarrhea, and esinophilia. Painful urination may also occur, particularly in persons infected with *S. haematobium*. The development of necrosis, lesions, and granulomas is common and occurs in the area(s) infected with the parasite. Obstruction of the bowel or uterers, as well as secondary bacterial infection and involvement of the central nervous system and other tissues, may also result.

Laboratory diagnosis

Laboratory diagnosis of *Schistosoma mansoni* and *Schistosoma japonicum* is accomplished by recovery of the eggs in stool or rectal biopsy specimens. The specimen of choice for the recovery of *S. haematobium* eggs is concentrated urine specimens. In addition, a number of immunodiagnostic techniques, including ELISA, are also available.