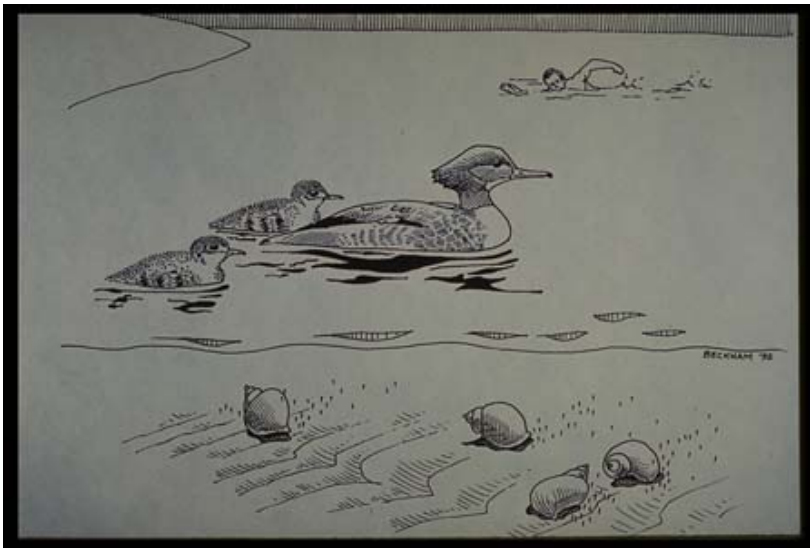


More Information about Swimmer's Itch

Swimmer's Itch (schistosome cercarial dermatitis) is an annoying and sometimes painful dermatitis that is most likely to affect those who swim or wade in freshwater lakes of Midwestern states. It is caused by the body's inflammatory response to the penetration of skin by larvae of the non-human schistosomatidae family of flatworms. Adult schistosomes occur in the blood vessels of birds and mammals, intermediate forms develop within aquatic snails. The larvae that emerge from the snails may penetrate human skin in their attempt to find a suitable host, although they are destroyed by the immune system while still within the top layer of the skin and are incapable of maturing. The resulting inflammatory reaction initially causes macular eruptions and itching at the site of penetration within 30 minutes, followed 10-15 hours later by papules and more intense itching. Symptoms usually disappear in about a week. Not all people develop a reaction, but the severity of symptomatic cases ranges from very mild itching to painful swelling (Lindblade 1998).



Research suggests that there are multiple species in the schistosomes family that can cause Swimmer's Itch. However, each species of schistosomes is generally very host specific. They require one species of the snail host, and one species of the avian or bird host (Hope College).

Common hosts include common mergansers, mallards, Canada geese, swans, red-winged blackbirds, etc., as well as muskrats and mice. It is difficult to know which bird species contributes most to the life cycle of the parasites that can cause the itch. Tests can be completed to pinpoint the specific species, but are costly and drawn out.

Common mergansers are considered one of the major hosts, usually harboring heavy infections compared to other species of bird hosts. For example, the average number of miracidia that hatch from the feces of the common merganser is more than 300/gram of feces. Usually, less than 25% of mallards, Canada geese, and wood ducks host miracidia and no more than a couple of miracidia are found per gram of feces. Furthermore, the cercariae from the species of schistosomes that cycle through common mergansers are much larger than average and emerge only from lymnaeid snails, particularly *Stagnicola emarginata*. Even a relatively few common mergansers can have an important swimmer's itch impact on a large recreational lake. It is important to note that not all species of snails, and not all waterfowl contribute to Swimmer's Itch. It is also important

to note that the stage of the parasite that causes the itch comes from the snail or intermediate host, not the bird.

The onset of Swimmer's Itch depends on how humans interact with the lake. Exposures to shallow water and areas with onshore winds are key risks. The larvae generally emerge with first light in the morning. They may live up to a day or more but life spans seem to be shorter in warm water. So time spent in the water earlier in the day may contribute to the likelihood of contact with the parasite. Greater time spent in the water may also increase the likelihood of contact. Age is likely not a significant factor for contracting Swimmer's Itch, nor is lake water quality, good or bad. The month of July appears to be the worst month recorded for cases of Swimmer's Itch. Areas where wave action and wind currents carry algae into shallow water should be avoided in lakes known to have caused Swimmer's Itch in the past (Verbrugge et al. 2004).

Detecting the presence of the parasite in the water is difficult as it is very small and nearly transparent. It is also difficult to predict where they will occur. Two methods of control have been tried with varying success. First, using a molluscicide in mid-June may help to destroy the snail host. However, these types of insecticide may have other negative effects and state permits are necessary. Second, capturing and treating birds including ducks and geese with an anthelmintic drug Praziquantel (the same drug veterinarians use for de-worming cats and dogs) may kill the avian form of the parasite. Getting it into water fowl may not be easy for non-seed eating waterfowl. Seed-eating birds could be fed treated corn or bread (Blankespoor & Reimink, 1991).

In recent years, there have been experimental attempts at treating the host birds with veterinary medicines. The theory is to rid the birds of the adult parasite before they can infect the snail population with miracidia. Depending on the different kinds and numbers of adult hosts, success at this method will be limited to very specific situations. Thus far, the procedure is considered impractical on a lakewide scale in Wisconsin (WDNR).

Modern pesticide laws prohibit treatments as they were historically attempted. Treatments to kill snails are very harsh and kill many non-target plants and animals and may also lead to contaminated sediments. Some high-use public beaches on specific sites where incoming drift of cercariae is unlikely, have been issued permits for a highly reduced treatment, but the result is very temporary and questionable. Anyone proposing any kind of pesticide or chemical treatment for any purpose must obtain a permit from the Department of Natural Resources (WDNR).

Responses from the Lake User Survey indicated that the possibility of contracting Swimmer's Itch was a major reason why swimming was not more common in Rice Lake. As is indicated above, areas of shallow water where prevailing winds blow algae and other material are the most likely locations for the presence of the larvae that cause the itch to occur. Areas in the center of the lake, or away from prevailing winds likely will not contain the larvae. Minimizing water contact in the more likely areas for the larvae will decrease the likelihood of coming into contact with the larvae. Other preventative measures include:

- Avoid swimming for long periods in shallow water
- Avoid swimming in areas where swimmer's itch is a problem and where there is an onshore wind
- Towel off immediately after leaving the water may help reducing swimmer's itch caused by cercariae of a few species that enter only as the water dries on the skin
- Post appropriate signs on beaches where swimmer's itch is an annual problem
- Do not encourage birds to stay in your area by feeding them
- Avoid placing rip-rap on your shore. This provides an excellent surface for certain species of snails to attach their eggs. The higher the number of snails, the greater the chance for swimmer's itch.

References

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