



Sandboxes can provide hours of outdoor entertainment for children. While the infectious disease risks associated with sandboxes are generally thought to be low there are concerns about a few serious diseases. Proper sandbox design, care and supervision can greatly reduce the risk of disease transmission, and allow sandbox play to be an enjoyable and safe activity for children.

## How Can a Sandbox Make Kids Sick?

Sandboxes may be used as large litter boxes by outdoor cats and wildlife such as raccoons. These animals may have various bacteria and/or parasites in their stool that can also infect people. Sandboxes may also attract spiders and other insects, and act as a breeding site for mosquitoes.



## How to Make a Safer Sandbox



### Sandbox Design

Sandboxes should be designed to keep animals out and to keep the sand as dry as possible, as it is harder for microbes and parasite larvae to survive in a low moisture environment. Wet sand can also be a breeding ground for mosquitoes. Drainage holes, if not present, can be made to help prevent water from accumulating in the sandbox.

### Keep It Covered!

- Just because you can't see any signs of animal tracks or stool in the sand, it does not mean that your sandbox has not become a giant litter box for the local wildlife and neighbourhood cats. These animals often pay their visits at night, and cats in particular tend to bury their stool, so you may never know they were there, even if you look.
- **Keeping your sandbox covered is the most important step you can take to help reduce the risk of disease transmission to the children who use it,** and it is especially important for sandboxes used by young children that may put sand in their mouths.
- An appropriate proper cover will prevent cats, raccoons and other animals from defecating in the sand and contaminating it with stool or urine.
- Many sandboxes that are available for purchase come with covers; these are ideal because the cover is well fitted and secure.
- Alternatively, sandboxes can be covered with plywood, a tarp or similar material, but the cover must be secure enough that wind or curious animals cannot displace it.



## Sandbox Care

- Check your sandbox regularly for animal stool and insects or spiders, especially if your sandbox is not covered, if the cover was accidentally left off, or if the cover was unexpectedly blown off or shifted for another reason. If you find any stool in the sand, remove it and the sand immediately around it with a shovel or some other means that avoids direct skin contact with the stool and contaminated sand.
- For some of the diseases of concern, animal stool may not actually be infectious for 24 hours or more after being passed. Daily inspection of the sandbox can therefore *reduce* the risk of disease, but only if all stool and the surrounding sand that has been contaminated are removed... this may not be easy!
- If animals feces are found in a sandbox used by young children or children that are likely to put sand in their mouths, it is best to change the sand before the children use it again.
- The sand in any sandbox should be replaced periodically. If the sandbox is uncovered, the sand should be changed more often (i.e. a few times a year).

## Keeping Kids Clean

- Children, and anyone who has direct contact with sand, should always wash their hands immediately after playing in a sandbox or any sandy outdoor area, such as a beach.
- Never allow children to eat or drink while in a sandbox, or before washing their hands after playing in a sandbox.



## Other Sandy Situations

- Sometimes children will play in sand that cannot be covered, such as sand on a beach or a playground.
- Hand-washing and avoiding food and drinks are just as important in these situations as they are with an outdoor sandbox... parasites don't take holidays!
- Sand should not be used as a ground base for playgrounds because it is almost impossible to cover those areas, and it will almost inevitably become contaminated with animal stool and urine.



## Zoonotic Diseases From Sandboxes

The following are the more important diseases that people can potentially contract from exposure to sand and sandboxes. Please refer to individual disease information sheets for additional details.

### Cutaneous larval migrans:

- ▶ This condition can be caused by various species of hookworms, some of which infect cats and dogs. Eggs of the parasites are passed in the feces of infected animals, and release larvae which can penetrate a person's skin. The larvae then travel under the skin causing irritation and inflammation.
- ▶ A playground sandbox contaminated with cat feces was implicated as the cause of an outbreak of cutaneous larval migrans at a day sports camp in the southern United States.
- ▶ *This condition is very rare in northern regions such as Canada.*

### Visceral and ocular larval migrans:

- ▶ These conditions can be caused by various species of roundworms, some of which infect animals such as cats, dogs and raccoons. Eggs of the parasites are passed in the feces of infected animals. If the eggs are accidentally ingested, they hatch inside the body, releasing larvae that then migrate through various internal organs (visceral) and occasionally the eye or brain (ocular or neurological larval migrans), causing irritation and inflammation. The ocular form can result in blindness.
- ▶ Infection is most likely to occur in young animals and children. Also, frequent playing in a sandbox was associated with the presence of antibodies (indicating exposure) against one of the parasites that can cause this condition (*Toxocara*) in a study of children in Brazil.
- ▶ *These conditions are very rare in northern regions such as Canada, but if the disease does occur, it can be quite devastating.*

### Toxoplasmosis:

- ▶ An infection caused by the protozoal parasite *Toxoplasma gondii*. Cats shed oocysts (which are similar to parasite eggs) in their stool that can become infective after about 24 hours. Most infections do not cause illness, or may cause mild flu-like symptoms. Serious infections can occur in people who are immunocompromised (e.g. HIV/AIDS, transplant or cancer patients), but are rare in people who are otherwise healthy. In pregnant women *Toxoplasma* can seriously affect the unborn baby.

### Bacterial infections that cause diarrhea:

- ▶ Several species of bacteria that can cause diarrhea in people can be passed in the stool of animals. These include *Salmonella*, *E. coli* and *Campylobacter*. They are all transmitted by ingestion, or contamination of the hands or food that is then transferred to the mouth. The role of sandboxes in the transmission of these bacteria is unclear, but the potential certainly exists.

## Zoonotic Disease Risk

The risk of transmission of a zoonotic disease from a **properly maintained sandbox** is:

