



There are a variety of tapeworm species that can potentially infect our pet dogs. The hydatid tapeworm (scientific name *Echinococcus granulosus*) is one of these.

Hydatid tapeworm is a 'zoonoses', meaning it can be transmitted from animals to humans. Hydatid disease in humans is challenging to treat and causes severe and life-threatening illness.

Thankfully, the infection of humans with hydatid tapeworm is far less common nowadays. This reduction in cases is thanks to improved worming products and practices, the popularity of feeding commercial dog food diets, and the move towards city living.

Despite the declining risk, there are still several people diagnosed with this disease every year in Australia. Most people do not know they are infected until the disease is well advanced. Unfortunately, young children are most at risk from inadvertently ingesting the hydatid tapeworm eggs.

### **Understanding the Lifecycle of the Hydatid Tapeworm**

Like many worms, the hydatid tapeworm has a complex lifecycle that involves several different species, not just the dog. The adult tapeworm lives and reproduces inside the dog's intestines (called the 'definitive host'). It may also live in the intestines of dingoes and occasionally foxes too. The dog usually shows no signs of infection at all, and some otherwise healthy dogs have been found to have thousands of hydatid tapeworms in their intestines.

The adult hydatid tapeworm is so tiny that you cannot see it in the dog's droppings – unlike other types of tapeworms that infect dogs that you can see clearly with the naked eye.

The adult hydatid tapeworm can live inside the dog for several years. During this time, it will periodically produce and shed eggs that pass out in the dog's droppings. The eggs can survive for months in the environment if the conditions are right – cool, moist, and overcast conditions are perfect.

Once the eggs have been passed, the lifecycle of the hydatid tapeworm continues via an 'intermediate host' – meaning that the dog cannot be directly reinfected by eating the eggs of the tapeworm passed in its droppings, or the droppings of another dog. Instead, there has to be another lifecycle phase inside a different species of animal.

In the case of the hydatid tapeworm, the intermediate host is sheep, cattle, or kangaroos that graze on egg-infested pasture.

Once the intermediate host eats the infected pasture, the eggs hatch into larvae. These larvae then migrate through the stomach wall and into the bloodstream before lodging somewhere in the animal's body - most often the liver and lungs.

Once lodged, they go on to form a 'hydatid cyst' (a watery, fluid-filled bubble with a thicker outer wall) in that organ. These cysts contain smaller capsules, with each capsule containing up to 40 hydatid heads – each of which are capable of turning into an adult tapeworm in the dog's intestines once they are 'digested'.

Luckily, in cattle, many of the cysts end up 'dying', and only about 10% have the potential to go on to infect a dog. But in sheep and kangaroos, the cysts are far more likely to remain infective, and the cysts can continue to grow and expand over the life of the animal.

When a dog eats the organ meat of an infected sheep or kangaroo, it also eats the cysts - the life cycle is then completed. Once inside the dog, the cyst releases the hydatid heads, and they mature into adult tapeworms ready to start laying eggs within about seven weeks.





### So why is This Tapeworm Such a Concern?

As we explained earlier, the hydatid tapeworm does not cause any serious disease in the dog. In its normal lifecycle, the intermediate host – the sheep or kangaroo – is the animal that is affected the most. In the intermediate host, the cysts can become very large, and the sheer size of the cysts can lead to damage and eventually severe failure of the organs involved.

Unfortunately, humans can accidentally become an intermediate host of the hydatid tapeworm by ingesting the tapeworm eggs. Once inside the human the eggs hatch into larvae in the same way that they would in any regular intermediate host.

The larvae move into the bloodstream and eventually become lodged in one or more organs. A hydatid cyst will then begin to form, and the damage done will depend on where the cyst is, and how large it becomes.

If the cyst gets large, the organ it is in will have reduced or altered function – a cyst in the lungs can make a human very short of breath, a cyst in the brain can act like a brain tumour. Often the human does not even know they are infected until the organ fails, and then it is a case of being very sick due to advanced disease.

Treatment usually relies on surgery to remove the cyst, along with supportive therapy. Sometimes before, or even during surgery, the cyst leaks or bursts. Each of the leaked hydatid heads may go on to form other cysts, so this is a very unpleasant disease.

### So how do Humans Contract Hydatid Disease?

Generally, humans become infected by accidentally ingesting eggs that have been shed by an infected dog.

Obviously, care must be taken when cleaning up after your dog, and all droppings should be collected and disposed of as soon as possible. This is particularly important if you have toddler-aged children who are notorious for putting all manner of things in their mouths if left lying around!

The eggs of the hydatid are quite 'sticky'. They can remain stuck to the dog's coat after passing a dropping, particularly around the anus area. As the dog licks and grooms itself, the eggs can be moved through the fur or can stick to the face and mouth of the dog. When a human pats or handles the dog, it is possible for the eggs to transfer to their hands. People who eat, drink or smoke without washing their hands can then transfer the eggs into their mouth.

There is also a risk that a human may be infected by eating raw foods (such as home-grown veggies) that have been contaminated by dog droppings, so keeping the dog out of the veggie patch and thoroughly washing food items before eating them is essential.

### Am I at Risk?

The people with the most significant risk of becoming infected are those in rural or city-fringe areas where dogs and sheep or kangaroos live in close proximity. Anyone who feeds raw offal from sheep, cattle or kangaroos to their dogs is also at an increased risk.

It is important to note that humans **CANNOT** be infected through eating offal meats that are contaminated with a hydatid cyst – they can only be infected via the eggs.

# Dogs Victoria Fact Sheet

## Health & Wellbeing

# Hydatid Tapeworm

The [Victorian Better Health](#) website suggests:

- » Regular preventive deworming of dogs is important, especially in rural areas where dogs may have access to animal carcasses.
- » Always wash your hands with plenty of soap and water after touching your dog. Instruct children to do the same. Supervise small children when they wash their hands.
- » Wash hands before eating, drinking and smoking and after gardening or handling animals.
- » Do not feed raw or cooked offal to your dog. This includes offal bought from a supermarket or butcher.
- » Do not allow your dog to roam when holidaying in country areas.
- » If you grow your own vegetables, fence your vegetable patch to make sure that pets and wild animals can't defecate on the soil
- » Be especially vigilant if you are a sheep or cattle farmer. For example, keep your dog fenced or on a lead when it is not working to prevent it from eating carcasses.

At present both Tasmania and New Zealand are entirely free of Hydatid disease, so it is a requirement that all dogs travelling to these destinations are dosed with a worm tablet that is effective against hydatids prior to being allowed entry.

The disease continues to be a problem in the rest of Australia, so be careful, maintain good personal hygiene, worm regularly, and avoid high-risk feeding practices.

If you have any questions about suitable worming products, worming programs, or hydatid disease, please ask your veterinarian for advice.

