



### **What would you think if you found this attached to you?**

**Tick-borne infection is on the increase.  
This affects wildlife and YOU!**

Would you consider the possibility of such a tiny spider-like insect infecting you, with no less than 4 distinct forms of bacterial/parasitic infection? Your interaction in the countryside, in city parks or even with domestic pets can put you at risk.

Tick-borne diseases in both animals and humans can lead to:

**Intractable pain, disabling fatigue, heart block, paralysis and visual impairment to name but a few.**

### **What is the threat in the UK?**

Research by scientists from the University of Oxford shows that ticks (small, eight-legged, blood-sucking parasites - part of the mite family) are becoming more abundant, infecting cattle, sheep and humans with a range of diseases. Trials show that the common grey squirrel and pheasants also act as suitable hosts to transfer known infections throughout the tick population of the UK and that infected ticks currently populate many parts of the UK. Studies carried out would indicate that cases are being under-recorded. The Game Conservancy Trust has been studying the impact of sheep ticks and the disease louping ill on red grouse in Scotland. In 1985, around 4 % of grouse chicks encountered by Trust researchers were infested with ticks; by 2003 the figure had risen to 92% and of these up to 80% of infected chicks, died. After radio tracking wading birds, scientists report chicks as young as 3 weeks old with heavy tick infestations. Studies carried out and published in the Journal Of Animal Ecology also show that hares were found to be important hosts for all stages of ticks at two study sites and, where sheep were frequently treated with acaricide, hares fed the greatest proportion of adult ticks. Hare densities were reduced at the experimental site between 1993 and 2001 but remained relatively constant at the control site. Both nymph and larvae tick burdens on red grouse chicks declined over this period to very low levels at the treatment site, but not at the control site. The estimated size of the tick population at the treatment site decreased by more than 99% by 1999. With the milder climate most areas appear to be having a rise in tick populations. Tick sampling has shown that infected ticks are abundant from the remote Isles of Scotland to the London parks.

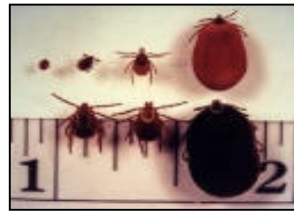
### **Ticks.**

In the UK the most common tick is the sheep tick (*Ixodes ricinus*) and is about the size of a sesame seed (2.5 mm). It is oval, with four pairs of legs and a flattened body. It is also known as the deer tick and also the castor bean tick. Ticks are most active in October and November and again during April and May but as the climate is becoming warmer the period of activity appears to be more prolonged. Ticks commonly attach to deer, dogs, horses and humans but are also known to infest other forms of wildlife such as

woodland and migratory birds, mice, other small rodents, hares, badgers and foxes. Ticks are known to transmit several diseases including Borreliosis (Lyme disease), Ehrlichiosis, Babesiosis, Bartonella (Cat Scratch disease) in humans and animals, Louping ill and Tick Fever in sheep.

During autumn and spring the adults may be found "questing" - waiting in ambush on vegetation from ground level to about 18 inches high (deer belly height) for a suitable host to pass by. Unfed females are rusty red with a small black shield on the back, and males are smaller and uniformly dark. After feeding for up to ten days on any mammal including humans, the adult female swells to the size of a small pea, and becoming blue-black. Most people, when asked to describe a tick, refer to a coffee bean sized insect which is like a grey-blue balloon. This description is how most people observe ticks on dogs or hedgehogs and describes a fully engorged adult. This can be quite clearly seen, however a fully fed nymph (newly hatched) tick, is much smaller and less noticeable.

### **Tick sizes nymph to engorged adult.**



After feeding and mating, females drop off their hosts and deposit eggs on the ground in autumn and early spring. These then hatch to produce very tiny *Larvae*, 0.5mm. The larva has only three pairs of legs. Larvae attach to mice and other small and medium-sized mammals and birds and feed for about three to five days. After feeding they drop from the host and seek a protected site under leaves or in dense vegetation, for the winter period.

### **Vole infested with ticks?**



### **How does this affect you?**

Currently Scotland has the highest percentage of MS sufferers of any Western civilisation; and conditions such as M.E., Chronic Fatigue Syndrome (CFS) or Fibromyalgia (FM) are steadily on the increase throughout the UK. It is possible these conditions could be in reality misdiagnosed Borreliosis infections. Both you and your dog are suitable hosts for a questing tick. Even if you do not get bitten, removing ticks from your dog can cause infection if not done correctly. Certain tick-borne pathogens have the ability to enter the body through the mucus membranes and breaks in the skin.

## **1. Borreliosis (Lyme disease).**

**Human Borreliosis** symptoms can range from:

Mild flu with fever, migrating stiffness and pain (and less commonly arthritis), myalgia (muscle pain), chest pain and palpitations, abdominal pain and nausea, diarrhoea, sleep disturbance, concentration and memory loss, mood swings, depression, blurred vision, eye, jaw & testicular / pelvic pain, tinnitus, vertigo, facial palsy (numbness, pain or tingling) or, optic neuritis (eye nerve damage), headache, dizziness, loss of feeling/ altered skin sensation, muscle spasms and extreme fatigue. Children often show decreased ability to understand schoolwork and intolerance to noise. Any of these symptoms can occur at any time from the initial bite and symptoms can be intermittent.

A bulls-eye shaped rash (*Erythema Migrans*) can occur but studies show that as few as 40% of people develop this rash. Many rashes vary from the typically described bulls-eye rash. It has been demonstrated that the majority of confirmed tick-borne disease sufferers recall no tick bite or associated rash that is assumed by many physicians to follow the bite of an infected tick.

It is recognised that *Borrelia burgdorferi* (Bb.), the most commonly found bacterial infection amongst ticks, can be passed from mother to child during pregnancy. Bb. is caused by a "spirochaetal" form of bacteria, which is similar, but much more advanced than syphilis. This would suggest that sexual transfer is a very real possibility. *Borrelia* have been extracted from breast milk, saliva and semen. It is also recognised that many people can become asymptomatic carriers of the disease. Just like chicken pox, which can later develop into shingles, or glandular fever (Epstein - Barr virus), such infections are merely suppressed by the immune system and never truly eradicated.

## **2. Ehrlichiosis.**

**Human granulocytic Ehrlichiosis** (HGE) has emerged as an important human health concern since 1990. Case fatality rates range from 0.7-4.9%. Clinically, HGE and another strain called 'Human monocytic ehrlichiosis' can be quite similar in appearances. In addition, both clinical presentations can overlap that of Lyme disease. Not surprisingly, since ticks are the vector for *A. phagocytophila* (HGE/HGM) and *Borrelia burgdorferi* (Lyme Disease), dual infections have been documented in humans and animals.

**Ehrlichia** infection can cause a number of clinical signs. It can be extremely hard to diagnose due to the wide range of symptoms that can occur. Patients present initially with vague signs of fever but can progress to headache, muscle aches, nausea, cough, lethargy, weight loss, loss of appetite, anaemia, haemorrhages, swollen lymph nodes, muscular or joint soreness, nasal discharges, severe neck or back pain, and eye problems. Neurological signs such as seizures and difficulty walking can occur. Respiratory or heart problems can occur. While early infection shows a number of symptoms, there is also a chronic form that can occur if the acute infection is not treated. In this case, the more vague symptoms become very severe again when the immune system is stressed.

## **3. Babesiosis.**

**Babesiosis** is another common infection transmitted by a tick bite and is most commonly seen in dogs and cows but affects other animals and humans alike. The worst cases are often described as a malaria-like infection; symptoms may include malaise, chills, myalgia, anaemia, fatigue, fever, nausea, night sweats, blood in the urine and weight loss.

### Treatment of Tick-Borne Disease.

Veterinary science tends to follow clinical methods for diagnosis having recognised the inadequacy of current testing methods. When presented with such clinical symptoms as swollen lymph nodes, muscular or joint soreness, anaemia or reduced platelet counts, a vet would prescribe a course of antibiotic treatment. Human medicine is still currently reliant on blood tests for diagnosis and so people with Borreliosis who have a negative test can subsequently be misdiagnosed with C.F.S and other conditions.

In Scotland, Lyme disease is a notifiable disease yet not all physicians appear to be aware of such legal requirements. The British Army also classes Lyme disease as a notifiable disease. Troops in the field regularly inspect each other for ticks. In England and Wales there is a voluntary monitoring scheme employed. Similar methods used in the U.S, have missed up to 90% of cases, so to follow these methods in the U.K, seems highly inadequate. Currently available testing methods on the NHS, are no more advanced than those available to vets.

Clinical guidelines issued by such bodies as The American Food and Drug Administration (FDA), and The Centers for Disease Control and Prevention (CDC) clearly state that diagnosis should be based on clinical symptoms, serological testing cannot rule out a current infection. This is due to the fact that such infections are known to be able to live within the very muscle, tendon, tissue and organs that make up the body; and are not necessarily to be found free floating in blood samples drawn. Unfortunately the current standard of testing available on the NHS can lead to misdiagnosis. Many who subsequently test positive for Lyme disease, following blood tests carried out abroad, were previously diagnosed with Chronic Fatigue Syndrome or other conditions

For more information please view the following web site addresses:

<http://www.anapsid.org/lyme/riseinticks.html>

<http://www.canlyme.com/tom.html>

<http://health.groups.yahoo.com/group/EuroLyme/>

<http://www.ilads.org/index.html>

<http://www.lymediseaseaction.org.uk/>

<http://www.wildernetwork.org/LDpediatricfund.html>

Alternatively, for further information, please send an A5 size SAE with 46p (postage) to: BADA-UK (information service)  
PO Box 70  
North Walsham,  
NR28 0WX.

### What do you do if you suspect you have been bitten.

If you find a tick embedded, remove it as per the instructions provided and keep it for possible testing. Consult your GP. Keep a record of any symptoms and photograph any rashes.

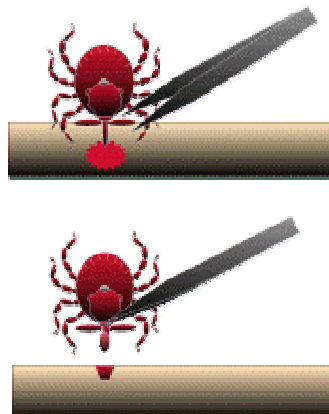
Visit the Internet websites mentioned for support. To obtain further copies of this leaflet, or further details on Borreliosis and Associated Disease Awareness see: [www.bada-uk.org](http://www.bada-uk.org)

### What is the best way to remove a tick?

To remove an embedded tick, use the following procedure:

1. Use fine-tipped tweezers and wear rubber gloves. In the absence of gloves, shield your fingers with a tissue or paper.
2. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause the mouthparts to break off and remain in the skin as well as possibly cause the tick to regurgitate infective saliva. (If this happens, remove mouthparts with tweezers. Seek medical advice if concerned.)

#### Tick Removal



3. **Do not** squeeze, crush, or puncture the body of the tick because its fluids (saliva & gut contents) may contain infectious organisms.
4. **Do not** handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin. This precaution is particularly directed to individuals who remove ticks from domestic animals with unprotected fingers.
5. After removing the tick, thoroughly disinfect the bite site and wash your hands with soap and water.
6. You may wish to save the tick for identification in case you become ill within several weeks. Your doctor can use the information to assist in making an accurate diagnosis. Place the tick in a plastic bag and put it in your freezer. Write the date of the bite on a piece of paper with a pencil and place it in the bag. Although not every tick carries Borreliosis or any of the known co-infections; English Nature in conjunction with DEFRA still advise "If a tick does attach, go to a doctor to have it removed, and to be prescribed preventive drugs (antibiotics) against Lyme disease".

**NOTE:** Tick removal implements can be purchased from your local veterinary practise. **Do Not** use *petroleum jelly* or burn the tick as this will stimulate it to release additional saliva, increasing the chances of transmission.

### How can you best prevent being bitten by a tick?

**Walk in the centre of woodland paths** to minimize tick encounters on overhanging grass and brush.

**Tuck trousers into socks** so any ticks that climb on will crawl on the outside and be less likely to bite. **Light coloured clothing** should be worn so the ticks will be easier to spot. Smooth materials such as windbreakers are harder for ticks to grab onto. Consideration should also be given to clothing with elasticised or drawstring toggles at the ankles, wrists and waist areas.

**When travelling through dense undergrowth** likely to tug at clothing proper leg/shin garters or alternatively duct tape could also be used to yet further reduce possible opportunity for tick bites.

Tick repellents that contain "*permethrin*" can be sprayed onto clothing. Spray the clothes before they're put on, and allow to dry thoroughly first.

**Do not apply this chemical directly to the skin.**

**Both dogs and cats are very vulnerable to ticks as well:** protect them with insect repellent or a tick collar. After walking your dog, or if your cat is allowed outdoors carefully brush the coat parting the hairs. Brush against the growth to see any embedded ticks. Remember to check between the pads of the feet and inside the ears. Remember to wear gloves when removing ticks from any animal.

#### Finch infested with ticks.



Ticks are very intolerant of being dried out. After a walk, take outer clothing off outside and put under clothes in the dryer **on high heat setting** for 60 minutes to kill any ticks that may still be present. Leave any outdoor clothing in a tied plastic bag until they can be laundered.

Insect repellents that contain "DEET" are effective when applied to the arms, legs, and around the neck. **Do not** use any repellent over wide areas of the body, as they can be absorbed causing toxicity. **Do not** use a product that contains more than 50% DEET, and 25% concentrations are preferred. **Use caution** treating small children, as they are more susceptible to toxicity. **This repellent evaporates quickly and must be reapplied frequently.**

Regular checks should be performed and while ticks can attach anywhere there are certain areas more preferable where blood is closer to the surface of the skin and it is warm and secure. The tick will choose a place that it is not at risk of being brushed off easily and where it can remain undetected. On humans ticks are most commonly found feeding on areas such as - the backs of knees, groin area, under the arms and on the scalp.

**[BADA-UK \(Borreliosis & Associated Diseases Awareness UK\)](http://www.bada-uk.org)**