



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

**Tick-borne infection is on the increase.
This affects 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 contact with the countryside, city parks, or even domestic pets can put you at risk.

Tick-borne diseases in animals and humans can lead to many conditions: **e.g. intractable pain, disabling fatigue, heart block, paralysis and visual impairment.**

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. Studies in the UK show that (a) common grey squirrels and pheasants also act as suitable hosts to spread specific infections within the tick population, and (b) infected ticks currently populate many areas. Research indicates that cases are being under-recorded.

An article called "Inglorious Twelfth for the Grouse Moors", published in the "Scotsman", reported that the grouse population has been in decline in many areas of Scotland. Research by scientists from The Game Conservancy Trust indicates that this may partly be due to an increase in tick numbers. Scientists and Upland Advisors at the Trust have followed the pattern of grouse breeding on Scottish moors for nearly two decades, and on some estates, the grouse counts show a continuing decline.

Ticks.

In the UK the most common tick is the sheep tick (*Ixodes ricinus*) which 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 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 birds (including migrants), mice, other small rodents, hares, badgers, squirrels and foxes. Ticks are known to transmit several diseases to humans and animals including *Borreliosis* (Lyme disease), *Ehrlichiosis*, *Babesiosis*, *Bartonellosis* (Cat Scratch disease), Louping-ill and Tick fever.

After feeding and mating, females drop off their hosts and deposit thousands of eggs on the ground in autumn and early spring. These then hatch to produce very tiny *larvae* (0.5mm), which have only three pairs of legs. They attach to mice, and other small-to-medium-sized mammals, and birds. They 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.

Adult to poppy seed sized nymph ticks.



How do these facts affect you?

Currently Scotland has the highest percentage of MS sufferers of any Western civilisation, and conditions such as ME, Chronic Fatigue Syndrome (CFS), and Fibromyalgia (FM) are steadily on the increase throughout the UK. Many people diagnosed with *Borreliosis* have previously been misdiagnosed with these conditions.

Both people and their pets are suitable hosts for questing ticks. Certain tick-borne pathogens have the ability to enter the body through the mucous membranes and breaks in the skin. Simply removing ticks from pets can cause infection if not performed correctly.

Borreliosis (Lyme disease).

Human *Borreliosis* symptoms and signs can include: Mild flu with fever; migrating stiffness (less commonly arthritis); pain of the muscles, joints, chest, abdomen; pelvic or testicular discomfort; nausea; diarrhoea; headache and eye pain; dizziness; vertigo; tinnitus; jaw-joint dysfunction; sleep disturbance; concentration and memory loss; mood swings; depression; loss of feeling/altered sensation; muscle spasms; optic neuritis (eye-nerve damage); blurred vision; facial palsy (numbness, pain or tingling); extreme fatigue. Children often display a decreased ability to understand schoolwork, and intolerance to noise. Symptoms can occur at any time from the initial bite, and can be intermittent.

A bullseye-shaped rash (Erythema Migrans) can occur, but studies report that as few as 40% of people develop this rash. Many rashes vary from the typically described bullseye rash. It has been demonstrated that the majority of confirmed tick-borne-disease sufferers do not recall either a tick bite or the associated rash, which 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 in ticks, can be passed from mother to child during pregnancy. Bb. is a "spirochaetal" form of bacterium, which is similar to, but more complex than, the syphilis spirochaete. *Borrelia* spirochaetes have been extracted from breast milk, saliva and semen, which suggests that human-to-human transfer is possible. It is recognised that many people can carry *Borreliosis* without presenting symptoms.

Like chicken pox, which can later develop into shingles, or glandular fever (Epstein - Barr virus), *Borreliosis* can be suppressed by the immune system but not truly eradicated. Complications of *Borreliosis* can occur if diagnosis or treatment is delayed or the course of treatment is too short. The effects of infection in such cases can be permanent and, in some cases, fatal.

Adult tick on tip of thumb nail.



2. Ehrlichiosis.

Human *Granulocytic Ehrlichiosis* (HGE) has emerged as an important human health concern since 1990. There are currently four ehrlichial species known to cause disease in humans. The variety of symptoms and signs caused by HGE and another strain, **Human *Monocytic Ehrlichiosis*** (HME), can be similar to each other and those of *Borreliosis*/Lyme disease, which makes diagnosis difficult. The first indication is fever but this can progress to headache, muscle aches, nausea, cough, lethargy, weight loss, loss of appetite, low blood counts, haemorrhages, swollen lymph nodes, muscular or joint soreness, nasal discharges, severe neck or back pain, and eye problems. Seizures, difficulty walking, respiratory and heart problems can also occur. While early infection can have varying degrees of severity, there is also a chronic form that can occur if the infection is not treated. In this case, initially vague symptoms become very severe when the immune system is stressed. *Ehrlichiosis* can also be fatal.

3. Babesiosis.

Babesiosis is another common infection transmitted by a tick bite and is most commonly seen in dogs and cows, but also affects other animals and humans. The worst cases are often described as like malaria. Symptoms and signs may include malaise, chills, muscle aches, low blood counts, fatigue, fever, nausea, night sweats, blood in the urine and weight loss. Not surprisingly, since ticks are carriers of *Ehrlichia*, *Borrelia* and *Babesia*, multiple infections have been documented in humans and animals.

Tick-borne Encephalitis (TBE).

Tick-borne Encephalitis (TBE) is a serious health risk to outdoor enthusiasts visiting European countries such as Croatia, Slovenia and Slovakia. TBE-endemic Europe spreads from the Rhine to the Urals, from Scandinavia to Central Europe. TBE is a debilitating viral disease of the central nervous system, which can cause serious meningitis or brain inflammation. Incubation is 8 to 14 days, after which the onset of symptoms is generally sudden and may consist of fever, severe headache, nausea and photophobia (intolerance of light). Vaccination against TBE is available at MASTA clinics, GP surgeries and healthcare centres. For further information on TBE, visit the MASTA "Tick Alert" web site:

<http://www.masta.org/tickalert>

Diagnosis & Treatment of Tick Borne Diseases.

Veterinary science tends to follow clinical methods for diagnosis of these infections, having recognised that current testing methods are unreliable. When presented with evidence of swollen lymph nodes, muscular or joint soreness, low blood counts, a vet would generally 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 CFS and other conditions.

In Scotland, Lyme disease is a notifiable disease yet not all physicians appear to be aware of this legal requirement. 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, doctors can participate in a voluntary monitoring scheme. However, a similar scheme in the US has missed up to 90% of cases, so UK cases are almost certainly under-recorded. Current NHS tests are no more advanced than those available to vets.

Guidelines issued by bodies such as The American Food and Drug Administration (FDA), and The Centers for Disease Control and Prevention (CDC), clearly state that diagnosis should be on clinical grounds. Serological testing cannot rule out a current infection. Infections are known to be able to live within muscles, tendons, major organs or any tissue of the body. Free-floating organisms may not necessarily be found in blood samples. Recent research has revealed that *Borrelia* can utilise proteins in tick saliva to suppress an antibody response within the host. Serological tests rely on the presence of antibodies to detect infection. Unfortunately the current standard of testing available on the NHS can lead to misdiagnosis. Many people have tests for tick-borne infections performed abroad after receiving a negative result from an NHS test. These private tests often prove positive for people who have previously been misdiagnosed with Chronic Fatigue Syndrome and 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.clinicalanswers.nhs.uk/index.cfm?question=1104>

<http://www.clinicalanswers.nhs.uk/index.cfm?question=1076>

Alternatively, for a further-information leaflet, please send a 1st class SAE (A5 size) to: BADA-UK (information service)
PO Box 70
North Walsham,
NR28 0WX

This leaflet is for information purposes only and is not a diagnostic tool. For diagnosis and treatment of a suspected tick-borne disease we advise that experienced medical guidance should be sought.

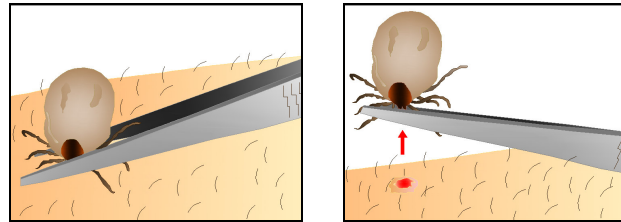
BADA-UK (Borreliosis & Associated Diseases Awareness UK)
Registered Charity No: 1113329 Company No: 5539748

What is the best way to remove a tick?

To remove an embedded tick:

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 host's skin as possible and pull upward with steady, even pressure. **Do not** twist or jerk the tick as this may leave the mouth parts embedded, or cause the tick to regurgitate infective fluids. Remove any embedded mouth parts with tweezers. Seek medical advice.

Tick Removal.



3. **Do not** squeeze, crush, or puncture the body of the tick, because its fluids (saliva & gut contents) may contain infective organisms.
4. **Do not** handle the tick with bare hands, because infective agents may enter through mucous membranes or breaks in the skin. This precaution is particularly important when removing ticks from domestic animals.
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. Write the date of the bite in pencil on a piece of paper and put it with the tick in a plastic bag. Place the sealed bag in the freezer. Although not every tick carries *Borreliosis* or any of the known co-infections, English Nature in conjunction with DEFRA still advises, "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 some veterinary practices and chain pet stores.

Do not use *petroleum jelly* or burn the tick, as this will stimulate it to regurgitate its stomach contents, increasing the chances of infection.

At home and in the garden.

Consider the habits of ticks when planning and landscaping your garden. Ticks thrive in humid, wooded environments and avoid sunny, dry areas. To make your garden less attractive to ticks, keep leaf litter to a minimum, and the grass short. Divide lawns from shrub areas with wood chips or gravel to deter tick migration. Keep seating and play equipment away from borders, trees and bird-feeders.

How can you best prevent being bitten by a tick?

Walk in the centre of woodland paths to avoid questing ticks on overhanging vegetation.

Tuck trousers into socks so that ticks will crawl on the outside and be less likely to bite. Knee-length nylon stockings worn over socks can prevent nymphs and larvae from penetrating loose weave.

Ticks find it hard to latch on to clothing made from **smooth or waxed** material. **Light-coloured fabric** makes ticks more visible. **Drawstrings** or elasticated wrists, ankles, and waistbands help prevent ticks from getting inside clothing

In undergrowth, leg gaiters will prevent or cover tears in trousers where ticks can enter. **Duct tape** can also be used over rips.

Insect repellents that contain "*permethrin*" can be sprayed on clothing. Allow clothes to dry thoroughly before wearing. **Do not apply this chemical directly to the skin.**

Insect repellents that contain 25% "DEET" can be applied, but they evaporate quickly and need repeated application. **NB: Confine application to small areas of the arms, legs and neck** as treatment over large areas can cause toxicity, especially in children.

Dogs and cats are very vulnerable to ticks. Protect them with insect repellent / tick collars. After walking your dog, or letting your cat go outdoors, groom it regularly (brushing against the growth, and parting the hairs to see any embedded ticks). Check the ears and between the pads. Always wear gloves when removing ticks.

Ticks are very intolerant of being dried out. After a walk, take outer clothing off outdoors and put remaining clothes in the dryer, ideally on **high heat setting**, for 60 minutes, to kill any ticks that may still be present. Tests have demonstrated that ticks can survive a full cycle in the washing machine and short durations in a dryer. Leave outer clothing in a tied plastic bag until it can be laundered. Perform regular checks for ticks. Although they can attach anywhere, they prefer areas where blood is closer to the surface of the skin. The tick will favour a place where it cannot be easily brushed off, and where it can remain warm and undetected. On humans, ticks most commonly feed behind the knees, in the groin area, under the arms and on the scalp.

Infected ticks have been found in mountainous regions at high altitudes. Climbers, paragliders, base jumpers, hanggliders, mountain bikers etc, are at as much risk as walkers. Team leaders are recommended to encourage regular tick checks.

What do you do if you suspect you have been bitten?

If you find a tick embedded, remove it as described in this leaflet, and keep it for possible testing. Consult your GP. Keep a record of any symptoms and photograph any rashes.

For support, visit the Internet websites mentioned. To obtain further copies of this leaflet, or further information on *Borreliosis* and associated diseases see: www.bada-uk.org