

A close-up photograph of cherry blossoms in full bloom, with soft pink and white petals and yellow stamens, set against a clear, bright blue sky. The focus is sharp on the foreground flowers, with others blurred in the background.

Public & Global Health Spotlight

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Index



New tick virus in Switzerland

A new type of tick virus has spread in Switzerland: the Alongshan virus. What does this mean for the Swiss population?

03

05

Comparing TBE And Lyme Disease

Both infectious diseases are transmitted by tick bites. How can you now distinguish between the two?



Mosquito and Tick Protection

Especially with ticks, it is important to remember that they can also pose a health risk independent of a trip, i.e. at home in Switzerland.

08



The Bomb Is Tick-ing

An Interview with Dr. Kyra D. Zens

A conversation with Dr. Kyra D. Zens, immunologist and epidemiologist at the University of Zurich about the spread of, vaccination against, and awareness about TBE.

11



New tick virus in Switzerland

In December 2022, a new tick virus has been found in Switzerland: the Alongshan virus. What does this mean for the Swiss population? Since the tick season has started, read on to find out more.



What is Alongshan?

The first time the Alongshan virus (ALS virus or ALSV for short) was detected was in 2017 in a hospital in Inner Mongolia. The patient was bitten by a tick and exhibited symptoms typical of TBE infection. However, neither the TBE virus nor its antibodies could be detected in the blood. After further testing, the patient was found to have the novel ALSV. In 2019, ALSV was also discovered in Finland and finally in Switzerland in late 2022.

Alongshan virus belongs to the flavivirus family, which also includes the TBE virus, dengue virus, Zika virus, and many more. Symptoms usually seem to present themselves similarly to those of a cold or at the beginning of a TBE infection:

- Headache
- Fever
- Fatigue
- Muscle pain
- Joint pain

Skin or brain inflammation is typical for TBE, but does not seem to be characteristic for an ALSV infection. In addition, all results indicate that the disease is transmitted by ticks, but mosquitoes cannot be excluded as vectors. ALSV RNA was detected in mosquitoes in Jilin Province in northeastern China. This RNA was found to be related to the RNA found in the ticks examined.

Alongshan virus detected in Swiss ticks

On December 6, 2022, a research team at the Vetsuisse Faculty of the University of Zurich announced that they were able to detect ALSV in Swiss ticks for the first time. They were also able to isolate the complete viral genome sequence, a necessary step for the development of a diagnostic test.

The tick samples were collected in between 2021 and 2022 in different regions of Switzerland, which means that the tick virus has been spreading in Switzerland for some time. The ALS virus was even detected more frequently than the TBE virus.

However, there is still no data on the number of cases in

Switzerland, because the symptoms are very similar to those of a TBE infection and testing for ALSV is difficult. Even so, Prof. Dr. Cornel Fraefel, Director of the Virological Institute of the Vetsuisse Faculty at the University of Zurich, states that a sudden increase in the number of cases is unlikely.

Detection in blood is difficult

The first choice for detecting a virus in the blood is usually the PCR method, which is now familiar to everyone through COVID. Depending on the virus, the blood is examined for RNA or DNA, i.e. the virus genome. However, since viruses in blood are often very unstable, direct detection is difficult and a negative PCR does not necessarily mean that no infection has occurred. Therefore, Prof. Fraefel's research team is currently working on a more reliable diagnostic procedure: an antibody test. This involves testing the blood for virus-specific antibodies, which the body produces as soon as it comes into contact with a virus. This procedure can often be simpler and faster to use.

Once the test is established, screenings are performed on patient samples. If ALS virus-specific antibodies or nucleic acids are indeed detected, diagnostic laboratories in Switzerland will also test for ALS virus in the future as part of TBE virus diagnostics.

How can you protect yourself?

Since there is currently neither a standardized detection method nor a vaccine against ALSV, the best way to protect yourself is to tackle the problem at its source and try to prevent tick bites from the beginning. When venturing out into nature, no matter for how short an amount of time, we recommend wearing long clothing and spraying yourself with tick sprays for skin and clothing.

In addition, we strongly recommend to get vaccinated against TBE or to check if the vaccination needs to be refreshed. Even though the TBE vaccine was not developed for the ALSV, you should at least make sure you are protected against one of the viruses. After all, you definitely don't want to fall ill with both at the same time.

If you are unsure whether you need to refresh your TBE vaccination or whether the vaccination is even an option for you, please feel free to contact us for a consultation. To do so, please book an appointment for a routine vaccination check.

Not sure if the TBE shot is right for you?

Our staff will be happy to go through your questions and concerns with you.



https://reisemedizin.uzh.ch/en/book_appointment

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Comparing TBE And Lyme Disease (And Their Risk in Switzerland)

Not all places worldwide are affected by tick-borne diseases. In Switzerland, however, the many forest areas and hiking trails provide the perfect habitat for ticks. Let's discuss the difference between TBE and Lyme disease, what symptoms to watch for, and how to protect yourself when enjoying the beautiful nature in Switzerland.



What is TBE?

Tick-borne encephalitis (TBE) is a viral disease that affects the central nervous system. As the name suggests, this infection occurs when an infected tick (found in wooded areas) bites someone.

TBE Phases

There are often two phases to TBE. The first phase is milder, and someone may experience symptoms such as:

- Fever
- Headache
- Fatigue
- Nausea
- Muscular Aches

The first phase of TBE feels similar to the flu, and the symptoms last an average of 5 days. Following this phase is often a time with no symptoms that usually lasts 7 days, although it can range anywhere from 1 to 33 days.

Things become more serious with the second phase as the disease affects the neurological system. This presents in two ways: meningitis and/or encephalitis.

Meningitis is an inflammation of the membrane surrounding the spinal cord and brain, and encephalitis is an inflammation of the brain itself. Both of these conditions can be very dangerous.

TBE Subtypes

There are three subtypes of TBE: European, Far Eastern, and Siberian.

The European subtype is transmitted by the *Ixodes ricinus* ticks. It is native to the rural and forested areas of eastern, central, and northern Europe. This subtype often produces milder diseases, with only 20-30% of those infected experiencing the second phase.

The far eastern subtype is transmitted primarily by the *Ixodes persulcatus* tick. It is found in far-eastern Russia and forested regions of Japan and China. This subtype typically produces the most severe diseases, and mortality rates can rise to 35%.

Finally, the Siberian subtype is also transmitted by the *Ixodes persulcatus* tick, but this subtype is primarily located in the Urals region, far-eastern Russia, and Siberia. It can also be found in some areas in north-eastern Europe. This is a less severe subtype, but patients tend to develop chronic or significantly prolonged infections.

TBE Treatment

Unfortunately, there is no antiviral treatment specific for TBE, and treatment instead focuses on supportive management. If it progresses to meningitis, meningomyelitis, or encephalitis, hospitalization is required where supportive care can then be managed based on syndrome severity.

What is Lyme Disease?

While Lyme disease (otherwise known as Lyme borreliosis) is also transmitted through ticks, it is due to a bacterial infection, not viral like TBE. In most cases, Lyme disease results from the bacterium *Borrelia burgdorferi*, although in rare cases, it is the *Borrelia mayonii* bacteria behind it all. These bacteria are transmitted when bitten by an infected *Ixodes ricinus* tick.

The symptoms of Lyme disease include:

- Headache
- Fatigue
- Fever
- Erythema Migrans (a skin rash)

The skin rash of erythema migrans is the easiest way to distinguish Lyme disease. It is usually a circular red area that often clears in the middle, creating a bullseye. However, around 1 in 3 people with Lyme disease will not develop this rash, so it is not the only sign to look for to recognize Lyme disease.

Lyme Disease Treatment

If Lyme disease is left untreated, it can spread to the heart, joints, and the nervous system, causing symptoms such as pain in the joints, numbness, memory problems, or heart problems. However, most cases of Lyme disease can be successfully treated with a few weeks of antibiotics. Additionally, the sooner Lyme disease is diagnosed, the easier it is to treat.

Comparing TBE and Lyme Disease

Both of these diseases result from a tick bite, so how can you distinguish between the two?

Initially, both of these infections show similar flu-like symptoms. 1 in 3 people with Lyme disease will additionally develop the erythema migrans rash, which is an easy way to distinguish between these two infections.

If you feel sick after being in a wooded area or bit by a tick, it is best to visit a doctor to determine if either option has infected you. Lyme disease has antibiotic treatment options, and while TBE does not have a specific antiviral therapy, supportive care is still available, especially for those who enter its second phase.

Protecting Yourself from TBE and Lyme Disease

For both tick-borne illnesses, the best form of prevention is through protection. If you are traveling somewhere that is wooded or at risk of tick-borne diseases, be sure to alter your habits to protect yourself.

There is no vaccine for Lyme disease, but a TBE vaccine is available in some areas at high risk of disease transmission. In Switzerland the vaccination is recommended for all citizens in most cantons, especially for those taking part in outdoor activities near forested areas such as camping, hiking, fishing, hunting, or birdwatching. Ticks are also more active during the warmer months, so if you plan on traveling during this time, it may be wise to inquire about the vaccine.

Other methods of disease prevention involve general ways of preventing tick bites [link to mosquito and tick prevention post], including wearing long clothing and using insect repellent. When in the woods, it is also best to avoid areas with high grass and leaf litter, and it is best to remain in the center of trails.

Uniquely Swiss

Reports have shown increasing cases of tick-borne disease in Switzerland, with cases of both Lyme disease and TBE rising. In Switzerland, tick season extends from March to November, and ticks can be found in all forests with lush undergrowth at altitudes up to 1,500m.

As with most tick-borne diseases, the exposure peaks in young adults and then declines with increasing age. This makes sense because ticks reside in wooded areas, and young adults are more likely to go hiking for fun.

However, there is a phenomenon that is uniquely Swiss when it comes to tick-borne diseases. Because tick-bor-

ne diseases are typically contracted through outdoor activities such as hiking, it is unusual for those in higher age groups (such as those over the age of 90) to become infected. In Switzerland, though, many older and retired individuals spend their time hiking or “wandern,” which then exposes them. This is why the risk of tick-borne diseases extends to later in life in Switzerland than in most other places in the world, and why proper protection (at all ages) is important.

We advise you!

Are you unsure whether TBE vaccination is right for you? Book your „Just-a-Shot“ appointment here and get professional advice.



https://reisemedizin.uzh.ch/en/book_appointment

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Mosquito and Tick Protection

We can all agree that mosquito bites and tick bites are not pleasant. When traveling, it's important to be aware of the potential risk so you can be prepared. Wear the right clothes, take insect repellent and sleep in a closed room or with a mosquito net to avoid getting bitten.



Travelling is often an exciting time full of endless possibilities. There are many things on our minds when we set off including how we're getting there, where we will be staying, and what we are going to do when there. However, another critical aspect of preparing for a trip is being aware of any diseases that you will be at risk of, specifically those transmitted by mosquitos and ticks.

Diseases Transmitted by Mosquitos

There are three common mosquito-borne diseases that can impact travelers and cause complications, putting a definite dent in what should be an enjoyable vacation. These three diseases are malaria, dengue fever, and yellow fever.

Malaria

Malaria results from a parasite transmitted by the female Anopheles mosquito, which is only active from dusk to dawn.

While the Anopheles mosquitos get a bad rap for transmitting malaria, the truth is that they must first contract

malaria themselves from a human host. So, if the Anopheles mosquito bites an infected person, they then become infected and can infect someone else when they grab their next meal.

The symptoms of malaria can come on fast, and you'll feel very bad very quickly if you become infected.

Symptoms include:

- High Fever
- Vomiting
- Aching Limbs
- Feeling Weak

However, this does not mean that you will show symptoms right away. Some people have a pathogen that remains dormant at first, sometimes for several months, before breaking out. Just when you think you're in the clear! If you feel sick and have fever, even months after your trip, it's recommended to get a blood test that can detect malaria.

Dengue Fever

Dengue fever is due to a virus transmitted by the tiger mosquito, which is most commonly found in cities but also in rural regions.

Dengue fever has main symptoms of fever and a skin rash. For tourists who have their first case of dengue fever, these symptoms typically subside on their own. However, those who undergo repeated infection can develop dangerous symptoms.

There is no specific treatment for dengue fever. However, those with severe cases might have their blood clotting tested regularly to minimize the risk of internal bleeding.

Dengue fever has some of the same symptoms as malaria, which can cause a dangerous scenario. If someone thinks they have dengue fever, they will likely wait for the virus to run its course. However, if they actually have malaria, they could be endangering themselves by not receiving treatment right away.

Yellow Fever

Of these three mosquito-borne diseases, yellow fever is the most dangerous with fatal outcomes in 50% of severe cases. Like dengue fever, it is caused by a virus.

Previously, yellow fever was seen most often in rural areas in east-west Africa and South America (especially Brazil, Bolivia, Peru, and Ecuador). However, recently it has been seen to move closer and closer to cities.

There is a vaccination against yellow fever, and many countries affected by yellow fever require this vaccination in order to enter.

Tick Borne Diseases

Fun fact: Ticks aren't actually insects, they're arachnids (like spiders). However, just like mosquitos, they bite and suck blood. In the process, infected ticks can transmit diseases that include Lyme disease, tick-borne encephalitis, or tick-bite fevers.

Lyme Disease

Lyme disease is caused by a bacterial infection that passes to humans when bitten by an infected black-legged tick.

Lyme diseases causes symptoms that include fever, headache, and fatigue. The most prominent sign of Lyme disease is a skin rash that appears as a ringed circle.

Most cases of Lyme's disease can be treated with a few weeks of antibiotics.

Tick-Borne Encephalitis

Unlike Lyme disease, tick-borne encephalitis is caused by a virus that impacts the central nervous system.

There are typically two phases of the infection. During the first stage, symptoms such as fever, headache, fatigue, nausea, and muscle aches appear. However, during the second phase, more severe symptoms involving the nervous system can arise, including encephalitis (inflammation of the brain) and meningitis (inflammation of the membrane surrounding the brain and spinal cord).

There is no treatment for tick-borne encephalitis. However, there is a vaccine which is recommended for those who live or temporarily stay in areas with reported transmission of tick-borne encephalitis.

Tick-Bite Fever

Tick-Bite fever is caused by bacterial infection, and symptoms often appear within two weeks of the bite. Symptoms include fever, headache, swollen lymph nodes, muscle soreness, and a rash.

Protecting Against Bites

When traveling to an area at high risk of mosquito or tick-borne diseases, it is crucial to take the proper precautions to protect yourself from infection. Check the Healthy Travel website to see what your travel location is at risk of, and structure your prevention accordingly.

While some of these bite-transmitted diseases have vaccinations, for many illnesses the only protection available is avoiding the bite in the first place.

Cover Up

If there is no exposed skin, the mosquitos and ticks have a hard time to bite you. Because of this, it is recommended to cover up your skin as much as you can (i.e., wear long pants and shirts). Additionally, wear shoes and high socks to keep the ankles and feet from being exposed. This is especially important for protecting against ticks since some repellents are not as effective against ticks.

Mosquito Nets

The Anopheles mosquito that transmits malaria is a night owl that only bites between dusk and dawn. Because of this, mosquito nets that go over your bed can keep you safe while sleeping.

Bug Repellants

One good thing about bug repellants is that they are effective until they are washed off, so you only have to reapply when it has been rinsed away. However, since sweating can also reduce the bug protection, it is recommended to reapply the repellent after 4-5 hours. It is important to ensure that bug sprays for the skin do not have a high concentration of DEET (30+%), as it can attack human nerves, which can be dangerous.

Besides spraying bug repellent directly on the skin, other sprays designated for clothing and mosquito netting can (and should!) also be used to further deter the bugs.



Mosquito nets: They keep away not only *Anopheles* mosquitoes but also other uninvited flying and crawling animals.

Protecting Yourself from Mosquito and Tick Bites

Everyone can agree that becoming a meal for a mosquito or tick is not pleasant. Despite the itching that a mosquito causes or the need to remove a tick from where it is embedded in the skin, there are extra things to worry about, including the diseases they can potentially carry and transmit.

When traveling, it is vital to be aware of the potential risk you may be in so you can prepare accordingly. Be sure to wear the proper clothing, bring repellent, and sleep in an enclosed space or with a mosquito net to keep yourself bite-free.

For most mosquito and tick-borne diseases, preventing bites is the best way to prevent disease, so stay vigilant!

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The Bomb is Tick-ing

- An Interview with Dr. Kyra D. Zens

„TBE in Switzerland is a much bigger deal than most people are aware of.“

Dr. Kyra D. Zens



Dr. Kyra D. Zens is an immunologist and epidemiologist at the University of Zurich. She studies how our immune systems respond to infection and vaccination and is looking at vaccination coverage among adults in Switzerland. One of her major research areas is tick-borne encephalitis (TBE). We sat down with her to find out more about the dangerous virus lurking in the grass.



Dr. Kyra D. Zens

Immunologist & Epidemiologist

Spring is tick season, and, with that, it is also TBE season. What is TBE and why is it so dangerous?

The TBE virus belongs in the same family as the viruses that cause Yellow Fever, West Nile Fever, Dengue, and Zika. Like these diseases, TBE is a disease of the central nervous system (the brain and spinal cord). Because these are very sensitive tissues, infection here can be really severe and damage can have long-lasting consequences. TBE is caused by a virus that is carried by ticks. This means that if we are bitten by an infected tick, the virus can then be transmitted to us. Since the TBE virus lives in the ticks' salivary glands, the transmission happens right away after the bite. As a comparison: the bacteria that cause

Borreliosis live in the gut of the tick. For transmission, the bacteria need to detach from the gut and migrate to the salivary glands and then into our skin. Because of this, the transmission can take a day or two and can sometimes even be prevented by removing the tick quickly.

Could you get both diseases at the same time?

The ticks here that carry TBE can also carry *Borrelia* bacteria, so technically, yes, you could contract both at the same time. While there are a couple of different tick species around here, the *Ixodes ricinus* tick - commonly known as the sheep tick - is the most common and they can carry many diseases.

Where do the ticks get it from?

From small animals. There is a greater range of reservoir hosts for *Borrelia* than for the TBE virus, but it's generally small mammals.

We hear a lot about “one health” approaches these days. In that line of thinking: would there be a way to vaccinate the hosts, meaning these animals, and try to contain the disease like that? Because my cat could also carry a tick, right?

Well, the main reservoirs are mice.

Ah, that makes vaccination a bit hard.

Indeed. For us, it is important to have antibodies. However, we currently believe that between mice a lot of the transmission may be non-viremic. This means that these mice actually have circulating antibodies and the virus is not necessarily transmitted from the blood of the animal to the tick. It seems that ticks who are feeding next to one another transmit virus to each other by coming in contact with infected saliva.

There have been several studies on this, and it seems to be an important mode of transmission. However, it is not super well understood and people do question it. Still, it is the prevailing wisdom at the moment and there is really no good way yet to interrupt this type of transmission.

There is another - relatively uncommon - mode of transmission where people can get the virus by consuming unpasteurized milk and eating products made from it, like soft cheese. This is because when an animal is bitten there is a period of viremia where the virus can be transmitted into the milk. If that milk is not pasteurized the virus can be transmitted. This is really uncommon though, so I don't think it's necessary yet to vaccinate all the cows in Switzerland :)

In some areas, they try to kill ticks with pesticides, but this has drawbacks. Pesticides can stay in the environment and end up back in our drinking water and food when not used carefully. They also tend to kill more than just the insect you target which interrupts the food chain, since insects are an essential food source for many animals.

So in short: controlling the virus in the environment is really tricky.

What do our readers need to know about TBE in Switzerland?

TBE in Switzerland is a much bigger deal than most people are aware of. While the disease was first reported in the 1970s in just the northeastern part of the country, it has spread widely since. This is partly because, as mentioned, it's very difficult to control the spread of ticks and the animals that carry them in the environment.

Switzerland has become one of the most highly TBE endemic countries in Europe – the disease incidence is similar

Not so fun fact:

Although we usually speak of tick bites, this is not entirely correct. It is true that the tick first bites its victim with its scissor-like mouth. In order to suck blood, however, it must then prick the skin with its snout. So, scientifically speaking, ticks sting you.

to what's seen in Latvia, Czechia, Estonia, Slovenia and Sweden. It is on the higher side of what is observed in the world. Now most areas of the country are considered risk areas. So, one needs to be careful here!

However, because it's still a relatively new issue in Switzerland, awareness is pretty low – A recent study found that, among TBE endemic countries in Europe, TBE awareness was lowest in Switzerland.

A couple years back the news reported an unusual amount of TBE cases in hospitals and it seemed that from one year to the next the whole country was a red zone. Why did TBE suddenly spread so fast?

There is a combination of factors and it's also thought to be driven, in part, by climate change. The winters are not quite as cold, and there is a longer warm season where people are outside. Since there is not much we can easily do about the spread of infected ticks in the environment, vaccination becomes an issue. If we can't control the virus in the environment, then we really need to protect ourselves.

Which regions have the highest incidence?

Some of the regions with the highest incidence are Thurgau and St. Gallen. Also Appenzell Ausserrhoden and Appenzell Innerrhoden. The BAG has a really good map of this. Vaccination coverage is highest in Zurich, followed by eastern Switzerland.

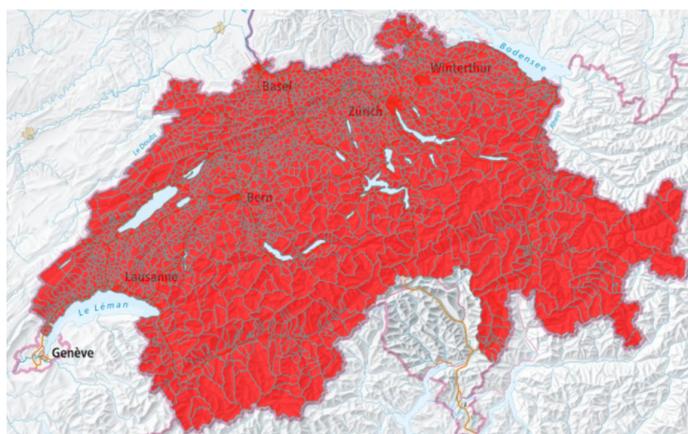
So, the highest incidence is in the northeast, where TBE started to spread from.

Exactly! On the other hand, we see the fewest cases and the lowest vaccination coverage in Geneva and Ticino which is why these cantons are currently not labeled as risk areas and there isn't a vaccination recommendation.

However, I would also say that Switzerland is a small country and people move around a lot. If you live in Ticino and you go hiking in the northern parts of Switzerland, you are at risk. It is not that far away.

Ah, the ticks have not yet crossed the mountains.

Actually, this begins to happen. There are game trails where large animals go through the alps and they are bringing ticks with them. So they track diseases along these pathways.



BAG card on TBE vaccination recommendation.

You have recently conducted a study on TBE. What was it about?

We've done a few studies looking at TBE in Switzerland. We're mostly interested in vaccination coverage. There are two vaccines approved in Switzerland to prevent TBE. We were interested in how many adults are vaccinated in different parts of the country and what factors might influence whether people are getting vaccinated or not. We've also looked at the effectiveness of the vaccines over time – so how long we can expect that they'll protect someone.

What have you found out?

We found that about a third of adults in the country are fully vaccinated¹. It varies a lot depending on the region. In higher incidence regions, the vaccination coverage is higher as well, which makes total sense. It plays into the whole fact of awareness.

One thing that is a bit frustrating to see is that even though you would expect the incidence to come down in regions with a higher vaccination coverage, we did not find this to be so. This indicates that the coverage is not high enough yet.

¹ TBE vaccination requires 3 doses within the first year of vaccination and a booster every 10 years after that.

Another thing that we found that I feel is very important is that awareness has a very big impact on vaccination – people who aren't vaccinated report that they don't feel they have enough information about the disease. This is totally understandable, and I think it shows that TBE is a disease that we need to be talking more about.

People here don't know how common and dangerous it is. Honestly, I come from a migration background and from a place where there is no TBE. And even though I study infectious diseases, I lived in Switzerland for 2 years before I learned about the disease from my kids' pediatrician! You can be an educated, intelligent person and simply not know. I want people to understand that it's never too late to get vaccinated!

Although, it seems like we get many routine vaccinations without always being entirely sure what they help against because we often do not see these illnesses anymore. Like Polio. Might there than be other reasons for why people don't get TBE vaccinations?

Another thing that has a strong impact on vaccination coverage is the perceived risk. If you are inside a lot and you don't have outdoor hobbies, I can see how one does not see a risk for TBE and, therefore, doesn't get the vaccine.

Understandable. But I have heard from parents whose kids sat down for just a couple minutes in the grass and came back with five ticks. So, they seem to be fast, and the absolute amount of time spent outdoors doesn't seem like the only factor your risk should be assessed by.

Yes. There are peaks the incidence of Borreliosis and, to some extent, in TBE in younger people, in kids from 5 to 14 years old, and we can assume it is because they spend more time outside.

However, TBE, like most infectious diseases, is more severe in older people. It is not fully understood why, but generally speaking, children and young adults have stronger immune systems and, as you get older, your immune system doesn't respond as well to infections. This is part of it, there are definitely other mechanisms at the cellular level that play a role and still need to be worked out. The immune system is very complicated and tricky to understand.

What other things did your study show?

Another important finding is that the vaccine effectiveness is surprisingly good. It protects for a really long time. We only need to get a booster every 10 years. However,

from our study we found that we really do need to finish the first three doses to get that protection!

Many people only get one dose and don't continue – but the vaccine is much, much less effective with just one dose. While one dose is better than nothing, it's absolutely key to finish those first three doses.

Also, if someone was vaccinated with one or two doses years ago, it doesn't matter – one can just continue with the schedule where they left off and still respond very well to the next vaccination. So again – it's never too late!

Another thing which is good to know is that it takes time for the protection to develop. To have time to generate a sufficient immune response it is recommended to get the first two doses at the end of the tick season² which means in winter around November and December. To get the second vaccine before tick season is ideal. About half a year to a year after the first dose you should get the third one and then you are good for the next ten years.

Is there a minimum amount of time after the vaccination after which you have some protection?

Since immune systems are highly complicated and everyone is different, this is really hard to say. Generally, immune responses take around two weeks to a month.

I would say after about a month after your second dose you'll have generated as much of a response as you're going to have after that second dose. Then you need to wait for a half a year to a year to get the third one.

This was a national study, but TBE is relevant outside of Switzerland as well and, thus, for travelers. How so? Can you tell us something about TBE worldwide?

The TBE virus is found in both Europe and Asia. The disease can be found as far east as northern Japan, there are many cases in northern China and it's highly endemic in parts of Russia and in the Baltic states. It's also now quite a problem in southern Sweden and Finland, in addition to Central Europe (Austria, Czechia, Germany, Switzerland). It's really important to consider the type of activities that one will be enjoying while traveling. If you'll be spending time outside in wooded areas in most of Eurasia, it's worth considering TBE vaccination.

Also, this is really important for travelers to Switzerland!! As I mentioned, Switzerland is among the highly TBE endemic countries – so we're already living in one of the

² Ticks become active as soon as it is getting warmer, so tick season is from March to November.

greatest risk areas – if you'll have friends or family visiting and if they'll be spending time enjoying nature, this is something that is worth bringing up with them.

It makes sense that the ticks are to be found in wooded areas and nature. But I assume that they can also be found in bushes and parks in cities, since there is quite the amount of blood to lure them there. So, "outdoors" includes outdoors in cities.

Yes! Absolutely.

Are you the only group in Switzerland who does TBE research?

No, there are a few groups in Switzerland, but there are not a lot of people that study TBE in general. The community of TBE researchers is small and they are located mostly in other TBE-endemic countries. For examples, there are several groups in southern Germany and Austria, which are also endemic areas and have a long history with TBE. However, in Austria for example, mass vaccination was initiated in the 1980s and since they have been familiar with the issue for an entire generation now, their vaccination coverage is over 80% and, therefore, the incidence is much lower than in Switzerland. We are a bit behind here, but I am confident that we will get there.

Which other running or upcoming research projects would you like to tell us about?

Our last study on vaccination coverage was conducted in 2018. That was the year where we had very many hospitalizations because of TBE, so it was a bad year in that regard. It brought on a lot of media coverage which spiked awareness.

It also triggered the change in vaccination recommendations and cost coverage of the vaccine by health insurances. Since 2019 the TBE vaccines are covered by basic insurance and are recommended in almost every canton. We plan to do another study on national TBE vaccination coverage soon, hopefully in 2024, to see if those changes had the impact we would hope for.

Another thing we should keep in mind is that not everyone who is exposed to the TBE virus (so bitten by an infected tick) gets really sick. Just think of the range with covid infections. Some people are completely asymptomatic while others have mild to severe symptoms or even develop long covid.

It's the same with TBE. People can be exposed without even knowing. Because of this, we do not fully understand how common it is.

Therefore, we are currently very interested in understanding how often people are exposed, but maybe just don't get sick enough to end up in the hospital or to get diagnosed with TBE. We can estimate this by looking at whether or not unvaccinated people have antibodies against the TBE virus.

Right now, we're working on a study looking at immune responses to the TBE virus in people in Zurich. I think this sort of work is important for helping to get a better idea of how widespread the virus really is. I also think that this can help to improve awareness.

For people to want the vaccine, they first need to be made aware that they are at risk. TBE is a terrible disease, and it can be prevented. It's important for us to focus on that.

Thank you very much, Dr. Kyra D. Zens!

We advise you!

If you are unsure whether you need to have your TBE vaccination refreshed or whether the vaccination is even an option for you, you are welcome to consult us. Arrange a Just-a-Shot appointment for this purpose.



https://reisemedizin.uzh.ch/en/book_appointment

We would love to talk to you!

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