

# Dengue fever

Dengue fever is caused by an infection with the **dengue virus**. There are four different types of the virus (DENV-1, -2, -3 and -4). Infected diurnal mosquitoes of the genus *Aedes* [yellow fever mosquito (*Aedes aegypti*) and the Asian tiger mosquito (*Aedes albopictus*)] are the vector transmitting the dengue virus. They are native to tropical and subtropical areas from Central and South America to Africa and South East Asia. The **habitat** of these mosquitoes are natural pools of water (puddles, in tree burls) or man-made water reservoirs (e.g. buckets, flowerpots or old tires filled with water), which is where they lay their eggs.



According to WHO estimates, 390 million people get infected with dengue virus annually, with 100 million showing clinical symptoms of an infection. This means that many cases are asymptomatic (without the affected person showing symptoms) or progress in a way that the infected person only feels slightly ill. On the other hand, approximately 500,000 infected people contract a serious infection each year, which is fatal in about 12,000 cases. The **geographical extension** and the incidence has increased significantly in the past 50 years, which is to say that currently 45 % of the world's population live in risk areas for dengue fever. The number of infected people has also increased in Germany and, according to the Robert Koch Institute (RKI), amounts to 1,000 reported cases each year in people who have recently travelled. Thailand (25 %) and Indonesia (23 %) are the countries most frequently mentioned as source of the infection (data collected in 2016, RKI). The illness starts after an incubation period of on average 3-7 days after the bite. If it becomes symptomatic, the affected person may experience high fever (38.5 °C or higher), muscle and joint pain, nausea and vomiting, headaches, shivering and pain behind

the eyes with redness in some cases. A significant amount of infected people present a rash (exanthema) extending from the trunk to the face and extremities 1-2 days after contraction. In most cases, the symptoms subside after 5-7 days. A blood analysis can show a reduced number of thrombocytes (blood platelets) and in case of bleeding also a reduced number of erythrocytes (red blood cells).

A particularity of dengue fever is that a person can get dengue fever more than once; infection with one serotype provides immunity to that serotype for life, but no **life-long immunity** to other ones. Thus, a person can be infected as many as four times, once per type. The second infection with the virus can be significantly more severe and can cause dengue haemorrhagic fever (DHF) including shock, which has a high fatality rate. European tourists only show this serious course after several stays in risk areas (for instance a holiday in the Caribbean followed by one in South East Asia a few years later). However, in rare cases, DHF can also occur in case of initial infection.

If you get dengue fever or symptoms typical for dengue, we recommend contacting our **medical emergency hotline** immediately and consulting a local physician. In tropical and subtropical areas, dengue fever can generally be diagnosed by any doctor or in any hospital by means of a quick blood test. **Treatment** is symptomatic and aimed at reducing fever and relieving muscle, joint and bone pain. Paracetamol is the medication best suited, while NSAR such as aspirin and ibuprofen must absolutely be avoided. In case of a severe clinical course of disease, inpatient treatment and close monitoring is needed. In the event of bleeding or shock, intensive care therapy is required.

You can **prevent** the disease by using insect repellents during the day and wearing clothes that fully cover your skin. In addition, the live vaccine Qdenga for the prevention of dengue fever has been available in Germany since February 2023. It is only injected subcutaneously (under the skin) and produces different levels of protection against the four dengue virus serotypes. The general protective effect was over 84 %, particularly for the prevention of a severe course of dengue fever.

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According to current knowledge, the following groups of people in particular would benefit from vaccination with Qdenga in travel medicine practice after weighing up the benefits and risks:

1. long-term or frequent travellers to dengue-endemic areas,
2. visiting friends and relatives (VFR) from dengue-endemic areas who are planning frequent or longer stays there and
3. people who have already had a dengue virus infection and therefore have a high risk of a severe course in the event of a second infection and are travelling to a country with a high risk of dengue transmission.

It should be noted that the vaccination must be given twice at a three-month interval and therefore requires early travel medical advice and vaccination planning.

Before going on a (diving) holiday to a tropical area, consulting a doctor specialised in travel medicine is generally recommended. Especially if you travel to tropical countries with (small) children, consulting a specialist is absolutely necessary.