

# Study in Tanzania shows a traditional diet causes less inflammation

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A traditional Tanzanian diet leads to less inflammation in people, a recent study shows. Credit: COLOURBOX.de

Urban Tanzanians have a more activated immune system compared to their rural counterparts. The difference in diet appears to explain this difference: in the cities, people eat a more western style diet, while in rural areas a traditional diet is more common. A team of researchers from Radboud university medical center (Netherlands), the LIMES Institute at the University of Bonn, the German Center for Neurodegenerative Diseases (DZNE) and the Kilimanjaro Clinic Research Center in Tanzania presents in a recent study that this increased activity of the immune system could contribute to the rapid increase in non-communicable diseases in urban areas in Africa. The study has been published in the scientific journal *Nature Immunology*.

The survey was conducted among more than 300 Tanzanians, some of whom live in the city of Moshi and some in the countryside. The team found that immune cells from participants from Moshi produced more inflammatory proteins. The people surveyed had no health problems and were not ill, but an activated immune system may increase the risk for lifestyle diseases, such as cardiovascular disease.

The researchers used new techniques to investigate the function of the immune system and the factors that influence its activity. They looked at active RNA molecules in the blood—known as the transcriptome—and the composition of metabolic products in the blood.

### **Major differences in diet**

These analyses showed that metabolites derived from food had an effect on the immune system. Participants from [rural areas](#) had higher levels of flavonoids and other anti-inflammatory substances in their blood. The traditional rural Tanzanian diet, which is rich in whole grains, fiber, fruits and vegetables, contains high amounts of these substances.

"In people with an urban diet, which contains more saturated fats and

processed foods, increased levels of metabolites that are involved in [cholesterol metabolism](#) were found," says Prof. Mihai Netea, a researcher at the LIMES Institute and the ImmunoSensation2 Cluster of Excellence at the University of Bonn and the Radboud university [medical center](#) in the Netherlands. He and his colleagues also found a seasonal change in the activity of the immune system. In the [dry season](#), which is the time of harvest in the study area, the urban people had a less activated immune system.

### **Western countries can learn from the results**

It has been known for some time that a Western lifestyle and eating habits lead to chronic diseases. Prof. Joachim Schultze from the DZNE and the LIMES Institute stresses: "We showed that a traditional Tanzanian diet has a beneficial effect on inflammation and the functioning of the immune system. This is important because [rapid urbanization](#) is ongoing, not only in Tanzania, but also in other parts of Africa." The migration from the countryside to the city is leading to dietary changes and is accompanied by a rapid increase in the number of lifestyle diseases, which puts a heavy burden on the local healthcare systems. The researchers emphasize that prevention is essential, and diet can be very important for this.

Additionally, these findings from Africa are also relevant for Western countries. Urbanization took place a long time ago in most western countries. By studying populations at different stages of urbanization, researchers therefore have unique opportunities to improve their understanding of how [diet](#) and lifestyle affect the human immune system.

**More information:** Godfrey S. Temba et al. Urban living in healthy Tanzanians is associated with an inflammatory status driven by dietary and metabolic changes, *Nature Immunology* (2021). [DOI:](#)

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