Mosquitoes can transmit bacteria thru physical touch: Study

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The Daily Morning Voice Online Desk: It's wise to stay away from mosquitoes to prevent bites. However, a recent study from North Carolina State University suggests that having a swatter handy may be another benefit of mosquitoes' bacteria-filled exteriors. The groundbreaking research, which was released in PLOS ONE, looked at mosquitoes located in residences in the Ivory Coast region of Africa's Cote d'Ivoire. "When you're exposed to mosquitoes, you worry about blood feeding," said R Michael Roe, William Neal Reynolds Distinguished Professor of Entomology at NC State and co-corresponding author of the study. "Our hypothesis is that mosquitoes can physically transfer bacteria by landing on you or by defecating on household surfaces, like flies do. "They may not, but no one has studied it before."

Research collaborators at the Centre Suisse de Recherches Scientifiques collected 79 adult female Anopheles coluzzii mosquitoes from homes in a rice-producing province in Cote d'Ivoire. The mosquitoes were sent to NC State for analysis of the microbiome inside and on external body surfaces. Some of the findings were surprising. "We found greater bacterial diversity internally than externally, which didn't match what has been found with blow flies, for example," said Loganathan Ponnusamy, an NC State principal research scholar in entomology and co-corresponding author of the paper. "At the same time, we found lots of external bacterial differences between homes, but not much difference internally between homes, which makes sense. Much of what is found internally relates to nectar or honey consumed as mosquitoes forage outdoors."

The researchers also found – for the first time in the academic literature – fructobacillus, which is generally found in nectar sources like flowers and beehives, pointing to mosquitoes visiting those plants or nectar sources, said Kaiying Chen, an NC State postdoctoral researcher and first author of the paper. Perhaps more ominously, the researchers also found large amounts of Staphylococcus and two variants of Rickettsia. The genus of these bacteria are associated with human and animal diseases. "This is another risk," Roe said. "Mosquitoes carry bacteria externally and internally and come into your home, possibly transferring pathogenic bacteria." The researchers hope to continue the work by exposing mosquitoes to a bacteria that would never be found on human skin and seeing whether the bacteria transfer to an artificial membrane. They then could perform the same test on human arms.