Sticky gecko feet: The role of temperature and humidity

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A team of five University of Akron researchers has published the paper, "Sticky gecko feet: the role of temperature and humidity" in PLoS ONE, an open-access, online journal for peer-reviewed scientific and medical research.

The UA authors are Dr. Peter Niewiarowski, professor of biology; Stephanie Lopez, graduate student in biology; Liehui Ge, graduate assistant in polymer science; Emily Hagan (undergraduate REU participant, Hiram); and Dr. Ali Dhinojwala, professor of polymer science.

"We tested the effect of temperature and humidity on the ability of geckos to stick to glass, expecting that neither would have a major role," says Niewiarowski. "Surprisingly, we found that both temperature and humidity variation affect their ability to cling to glass.

"For example, under very humid conditions, geckos stick with twice the force compared to dry conditions at low temperatures. At high temperatures, geckos stick comparatively poorly and the humidity level is less important. Previous work by other labs using isolated setae suggested that clinging ability should be insensitive to variation in both temperature and humidity. Our work with live geckos indicates a need to further explore the role of temperature and humidity on adhesion to different surfaces in both natural (geckos) and synthetic materials."

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