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## Why Spiders Do Not Stick to Their Own Sticky Web Sites

Researchers at the Smithsonian Tropical Research Institute and University of Costa Rica asked why spiders do not stick to their own sticky webs. Repeating old, widely quoted but poorly documented studies with modern equipment and techniques, they discovered that spiders' legs are protected by a covering of branching hairs and by a non-stick chemical coating. Their results are published online in the journal, *Naturwissenschaften*.

They also observed that spiders carefully move their legs in ways that minimize adhesive forces as they push against their sticky silk lines hundreds to thousands of times during the construction of each orb.

The web-weaving behavior of two tropical species, *Nephila clavipes* and *Gasteracantha cancriformis*, was recorded with a video camera equipped with close-up lenses. Another video camera coupled with a dissecting microscope helped to determine that individual droplets of sticky glue slide along the leg's bristly hair, and to estimate the forces of adhesion to the web. By washing spider legs with hexane and water, they showed that spiders' legs adhered more tenaciously when the non-stick coating was removed.

The Smithsonian Tropical Research Institute, headquartered in Panama City, Panama, is a unit of the Smithsonian Institution. The Institute furthers the understanding of tropical nature and its importance to human welfare, trains students to conduct research in the tropics and promotes conservation by increasing public awareness of the beauty and importance of tropical ecosystems.

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Reference: R.D. Briceño and W.G. Eberhard. 2012. Spiders avoid sticking to their webs: clever leg movements, branched drip-tip setae, and anti-adhesive surfaces. *Naturwissenschaften*. DOI 10.1007/s00114-012-0901-9. Published online: 1 March 2012.