

Shaken (not stirred) fur

The next time a wet dog shakes itself dry all over your living room, give it credit: It's drying itself with optimal efficiency, physicists say. Water clings to an animal's hair by surface tension; to eject the liquid, the animal must generate an even greater centripetal force, by shaking. The process fits a fairly simple mathematical model, which indicates that smaller animals need to shake faster to produce the necessary force. To confirm the math, researchers at the Georgia Institute of Technology videotaped 40 wet, hairy animals—lab rats, dogs, even a tiger from the zoo—as they shook themselves dry. The scientists found that bigger animals indeed shake more slowly: While a mouse gyrates back and forth 27 times per second (27 hertz) to get itself dry, a grizzly bear does so only four times per second (4 hertz). "The animals are shaking at optimal frequencies," team member David

Hu tells *Science News*. "I think it's pretty amazing they can do that." It's also a life-saver; if an animal didn't shake the water free, "it would have to use 25 percent of its daily calories to heat its body to get rid of the water," says Hu. "Every time they got wet they would get hypothermia and die."



It takes a bit of math to get dry.