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Social learning, the process through which individuals learn from others, has been long thought to be restricted to humans. Yet, in the past decades, social learning has been described from primates, birds, fishes and insects. Indeed, it is for example well known that honey bee foraging relies on social learning. However, whether parasite resistance traits can also be learned from nestmates remains largely unexplored. Here, we show that grooming against ectoparasitic mites, *Varroa destructor*, can be significantly enhanced via social learning in western honey bee workers, *Apis mellifera*. Newly emerged individuals ("learners") paired in cages with older workers ("demonstrators") displayed more frequent and faster grooming behaviours following mite exposure than controls paired with inexperienced newborn workers. A follow-up study was conducted in the native range of the mite in Thailand using the same design, but with the original and resistant host of the mite, *Apis cerana*, as demonstrator to test whether inter-specific social learning can lead to improved grooming behaviour in the new host of *V. destructor*. In addition to these individual-level assays, colony level assays in the field were conducted to verify whether the addition of *A. cerana* workers can enhance grooming abilities within colonies of *A. mellifera*, and whether these potential effects remain months later, after the introduced original hosts have died. Given that our laboratory data at individual level can be confirmed at the colony level in the field, this would suggest that social learning constitutes a previously overlooked key mechanism governing honey bee health. Altogether, these results would open novel promising strategies for beekeepers to control honey bee diseases.