Cocaine and other addictive drugs ‘hijack’ the reward system of the brain, leading to profound changes in many different behaviors. In honeybees cocaine is already known to cause changes in reward-related behaviors including food responsiveness, learning and memory, and the dance language. To investigate the effect of cocaine on social behavior in bees, we used an optical barcode and camera system to track and monitor the social interactions of all honeybees in a small observation colony. Groups of bees reared in cages for four days with either normal food or food spiked with cocaine were then introduced into the observation hive. We report on the effects of cocaine feeding on the social network formed by the bees and the rates of interactions between individuals within it, including interactions with the queen. In addition, we analyzed patterns of behavior to look for the effects of chronic cocaine feeding on division of labor, circadian rhythms and other activity patterns, and reaction to disturbance.