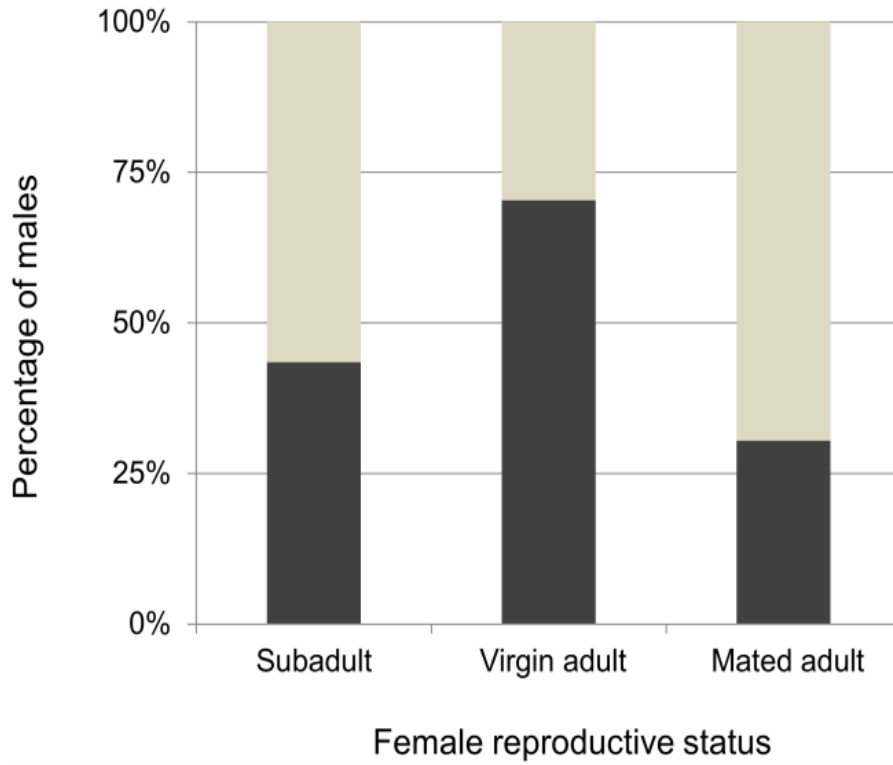




# Mate Choice in Spiders



**Caption:** The figure shows the percentage of male spiders that remained in an empty, female-built web for four days after being placed there by researchers (dark bars) and the percentage of male spiders that left the web (light bars). The webs were built by females that differed by reproductive status: subadult, virgin adult, or mated adult.

### OBSERVATIONS, NOTES & QUESTIONS

BACKGROUND INFORMATION	BIG IDEAS, NOTES & QUESTIONS
<p>Physical and behavioral adaptations increase an animal's reproductive success. An animal has higher reproductive success when it produces more offspring that survive to reproduce. Because males can produce many more sperm than females can produce eggs, males and females usually evolve different strategies for increasing reproductive success. Some of these strategies involve mate choice, or choosing certain types of individuals to mate with. In many species, males can produce many sperm without using too much energy. As a result, these males are often “un-choosy.” They try to mate with many females in order to produce many offspring. Females, on the other hand, are often limited by the energy required for egg production. These females are often “choosy.” They try to mate with males that are healthier or better providers in order to produce more successful offspring.</p> <p>Although un-choosy males and choosy females are found in many animals, this trend can be altered by the behaviors of certain species. One such species is <i>Cyrtophora citricola</i>, a web-building spider that can live in colonies of thousands. The female spiders usually eat the males during or immediately after mating. This behavior is called sexual cannibalism. Due to sexual cannibalism, most males never get a chance to mate more than once. In addition, as females cannibalize males, the number of females for every male increases in the population.</p> <p>Scientists hypothesized that these factors would make male <i>C. citricola</i> spiders choosier about their mates. In one experiment, the scientists placed male spiders into empty webs built by different female spiders. The females were categorized into three groups based on reproductive status:</p> <ol style="list-style-type: none"> <li>1. subadults, younger females that were not yet ready to mate</li> <li>2. virgin adults, which were ready to mate for the first time</li> <li>3. recently mated adults, which were likely to use the sperm of previous mates to produce offspring.</li> </ol> <p>Males can detect the reproductive status of females by sensing chemicals in the females’ webs. By observing whether the males stayed in the webs, the scientists determined the males’ preferences for different types of females.</p>	