

# REVIEW QUESTIONS

I had a question regarding lecture. In the bees as an example of inclusive fitness how do the male focal individuals have 1.0 probability that an allele will be present in an identical copy in their daughter? Isn't this neglecting the mother's contribution? While all his sperm are genetically identical, the daughter still inherits some allele from the mother?

Could you please explain how the relatedness coefficient for cousins is calculated. I know that it is  $0.5 \times 0.5 \times 0.5 = 0.125$ , but where do the numbers come from?



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# Decisions about parental care in response to perceived paternity

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And mother always told me  
"Be careful of who you love  
And be careful of what you do  
'cause the lie becomes the truth"  
Now Billie Jean is not my lover  
She's just a girl who claims that I am the one  
**But the kid is not my son**

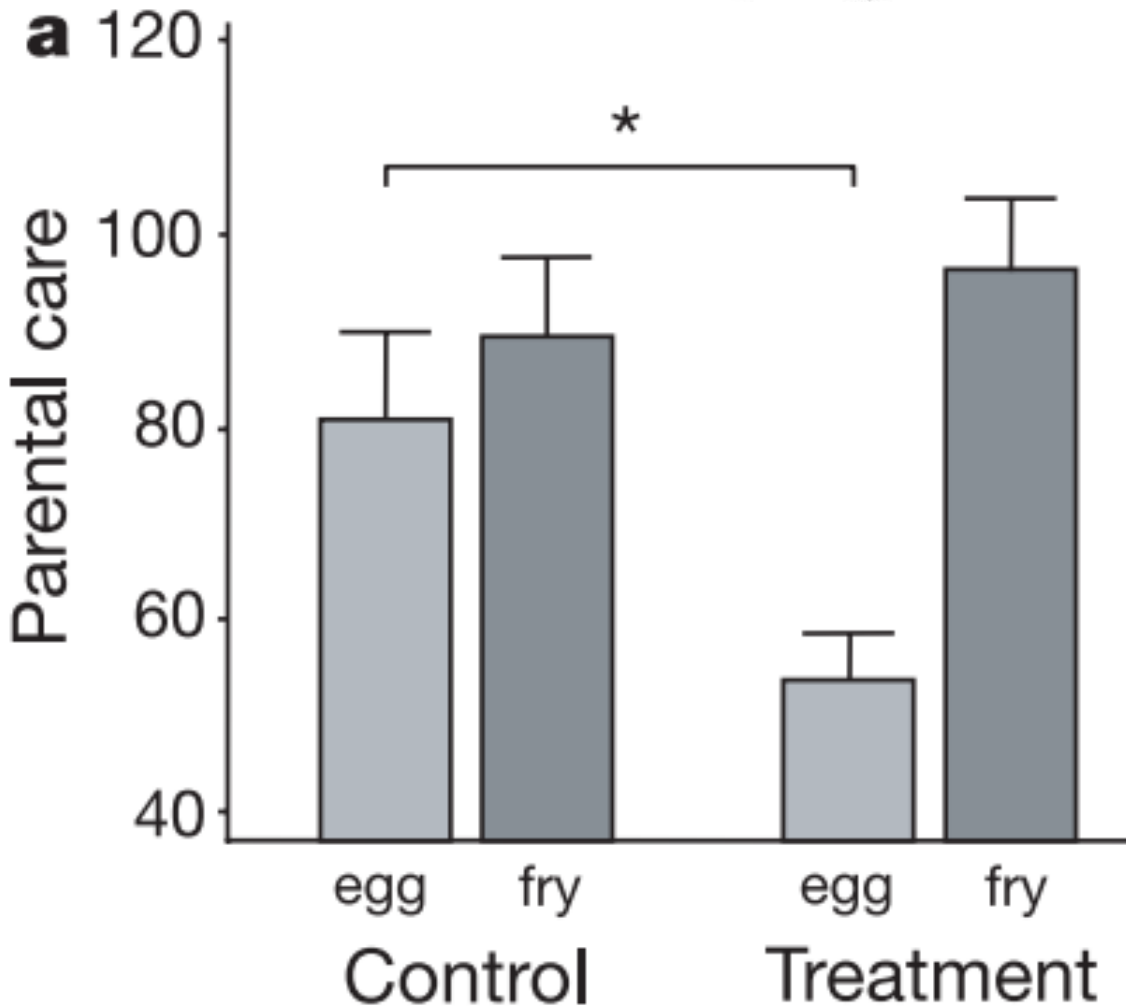
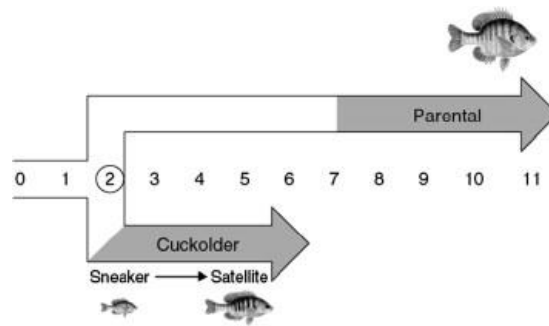
What's the Hypothesis?

Parental male bluegill sunfish (*Lepomis macrochirus*) can assess their paternity using both the visual presence of parasitic cuckolder males during spawning, and olfactory cues released by newly hatched eggs

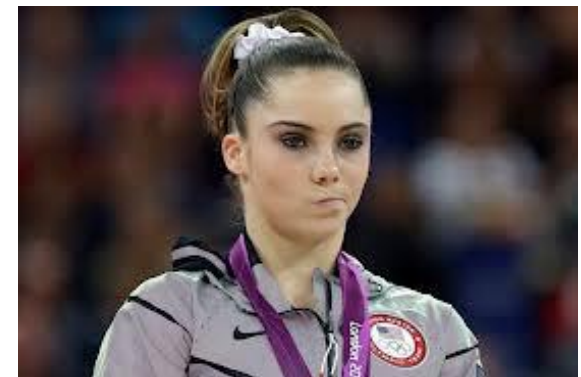
If the hypothesis is true, what prediction would you do?

Parents invest care according to the evolutionary value (genetic relatedness) of their young.

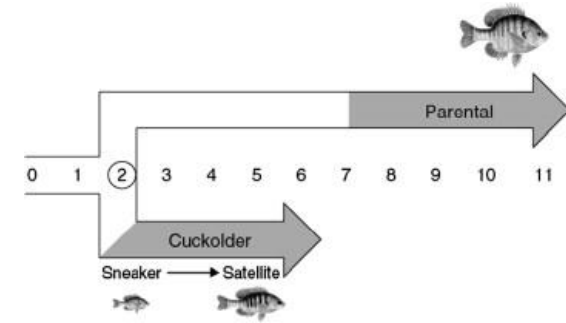
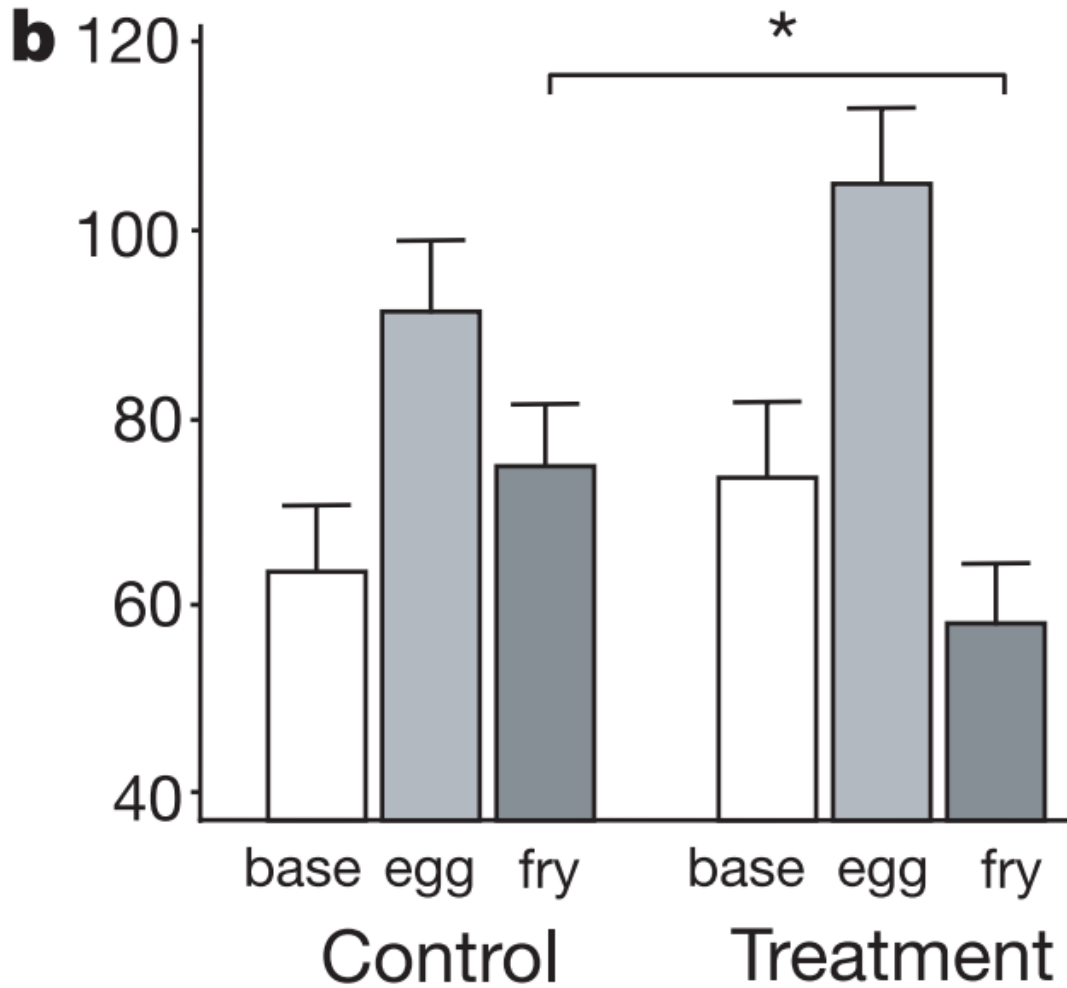
Describe experiment 1:

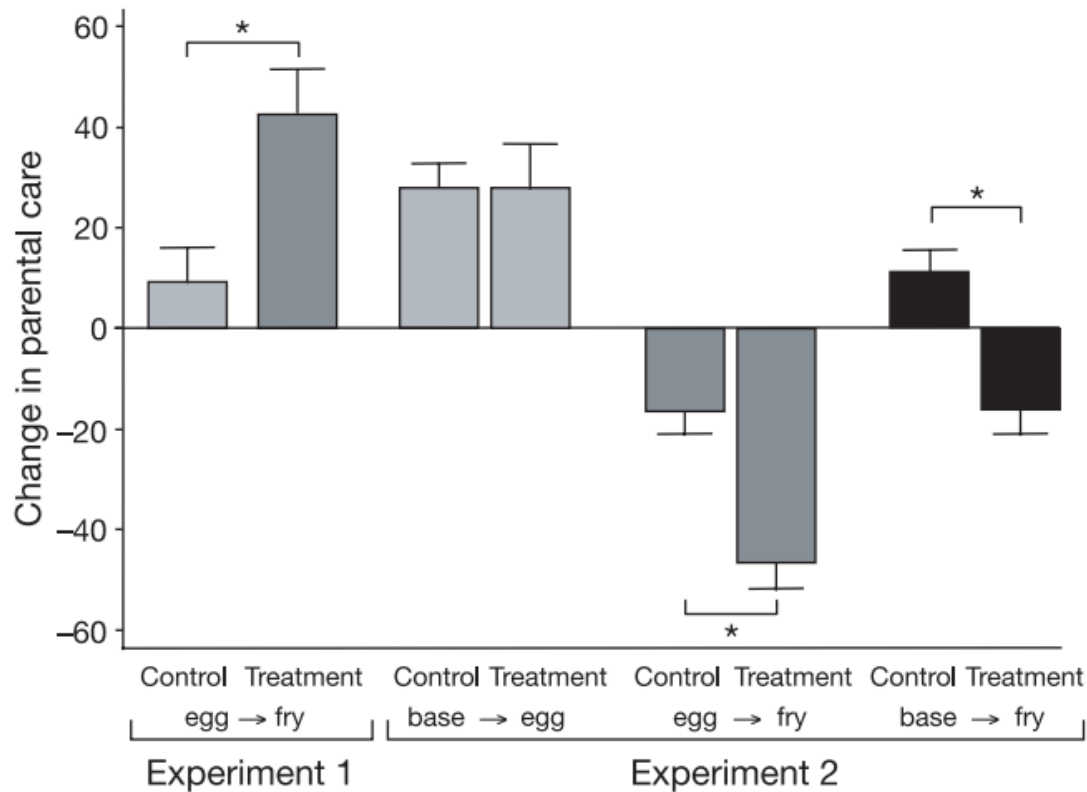


Parental care was quantified using brood defence by presenting a live predator in a clear bag. An index of the parental's willingness to defend his brood was later calculated from the equation:  $\text{Brood defence} = 1 \times L + 2 \times F + 3 \times B$ ; where L, F and B are the total number of lateral displays, opercular flares and bites performed by the parental male during the trial



Describe experiment 2:





Did the authors did further analysis to support these results?

Combining data from both experiments, 10 treatment males (6 in experiment 1 and 4 in experiment 2) and 3 control males (2 in experiment 1 and 1 in experiment 2) abandoned nests during these predicted times. The probability that 10 or more males would abandon from the treatment group yet 3 or fewer from the control group is unlikely to occur by chance (cumulative binomial probability:  $P \leq 0.065$ ).

Did the authors have other observations that support these results?

NO, in experiment 2 treatment males did peck at their fry more often, although the difference was not significant (treatment:  $15.3 \pm 1.8$ ; control:  $10.8 \pm 1.6$ ;  $t_{27} = 1.81$ ,  $P = 0.081$ ).

Is the prediction :“Parents invest care according to the evolutionary value (genetic relatedness) of their young”, true?

