Bad Science
Animal Myths Busted

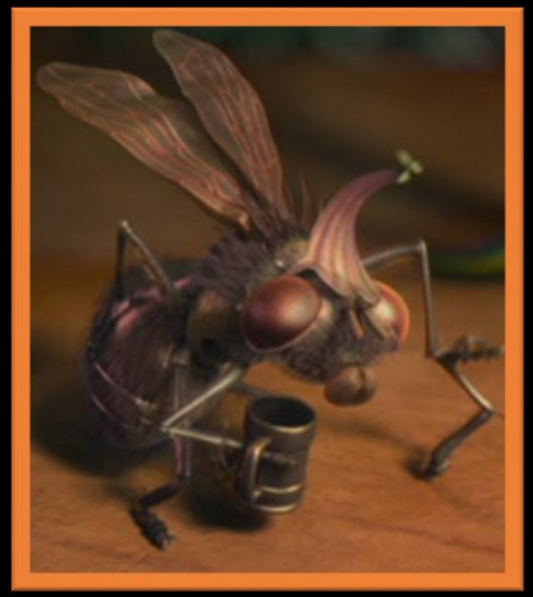
Jaclyn Curry

181029

Purpose of Bad Science

Present data behind common misconceptions

Animal Myths Busted



Houseflies have a lifespan of 24 hours

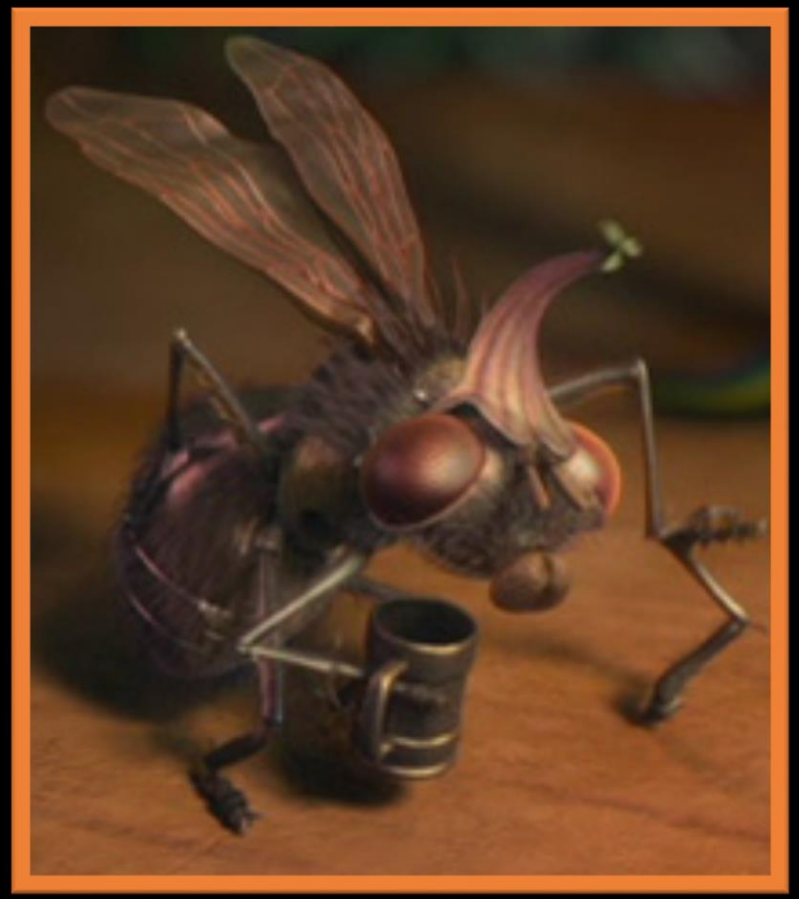
Goldfish have a 3-7 second memory

Elephants are afraid of mice

https://thebestschools.org/magazine/25-popular-science-myths-debunked/

Houseflies have a lifespan of 24 hours

- 30 day on average lifespan
- Males 1/3 shorter lifespan than Females
- Male death due to aggressive mating behavior



https://www.behindthevoiceactors.com/movies/Epic/Fruit-Fly-Old/

Ragland, S. S.; Sohal, R. S., *Exp. Gernot.* **1973,** *8*, 135-145.

Houseflies have a lifespan of 24 hours

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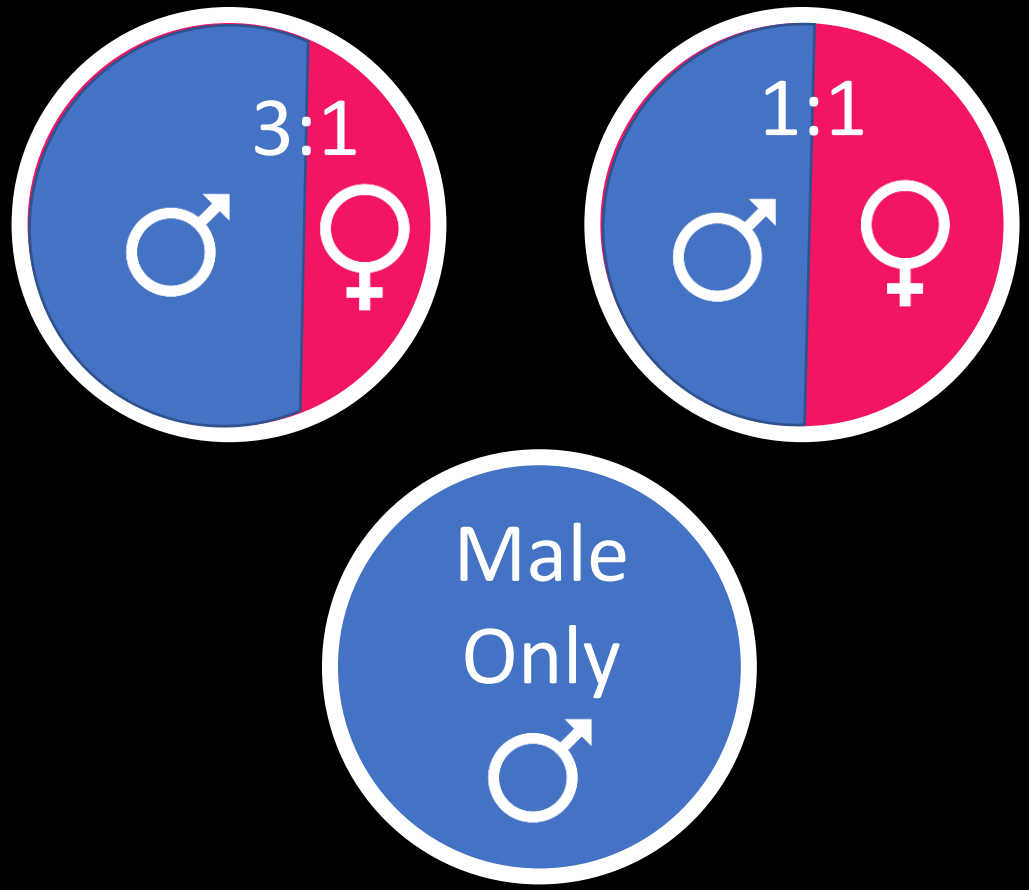
- Study:
  - 200 flies per batch
  - Vary Male : Female Ratios

Male:Female



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- Males 1/3 shorter lifespan than Females
- Male death due to aggressive mating behavior
- Study:
  - 200 flies per batch
  - Vary Male : Female Ratios
- Results
  - Males die faster with females present
  - Males become flightless faster with higher ratio

Legend	
Broken Line	Flightless Flies
Solid Line	Dead Flies
Wing Loss in Flightless Flies	
Solid Bars	< 1/3
Light Bars	> 1/3

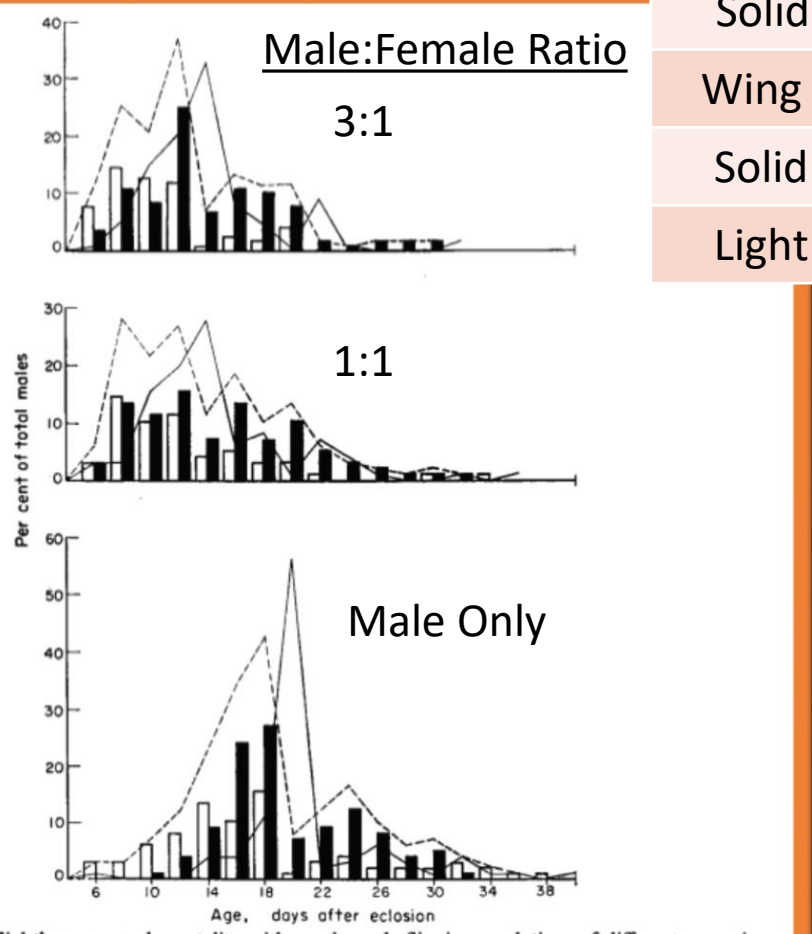

FIG. 1. Wing loss, flightlessness, and mortality with age in male flies in populations of different sex ratios. Broken lines represent percentage of flightless flies. Wing loss in the flightless flies is indicated as <1/3 (solid bars) or >1/3 (light bars). Solid lines represent mortality.

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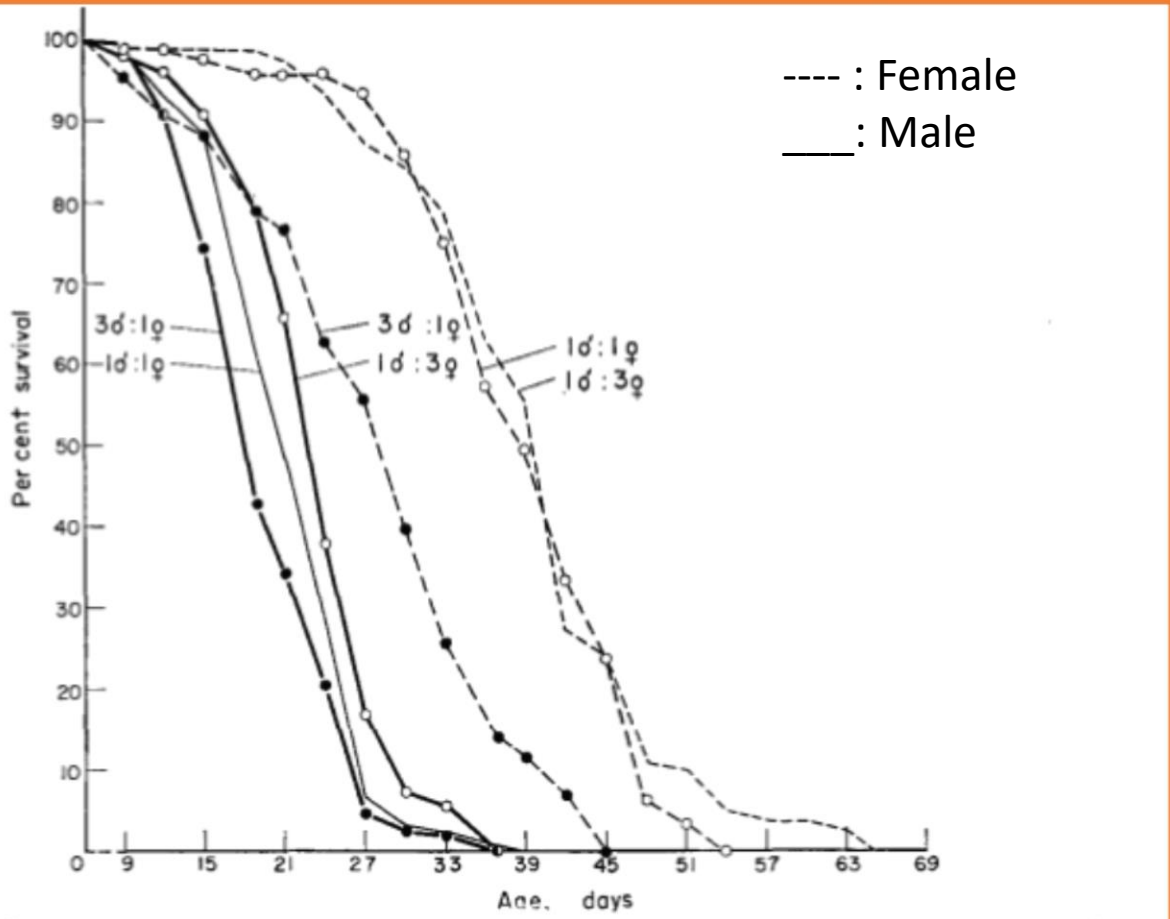
Houseflies have a lifespan of 24 hours

- 30 day on average lifespan
- Males 1/3 shorter lifespan than Females
- Male death due to aggressive mating behavior
- Study:
  - 200 flies per batch
  - Vary Male : Female Ratios
- Results
  - More than 50% males decreased lifespan for male and females
  - No change in male lifespan with varied ratios



Survival curves of male (solid lines) and female flies (broken lines) in 3 populations with different sex ratios. Each population consists of 200 flies.

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Houseflies have a lifespan of 24 hours

- 30 day on average lifespan
- Males 1/3 shorter lifespan than Females
- Male death due to aggressive mating behavior
- Study:
  - Isolate singular flies in vials
  - Stripped some of wings
- Results
  - No statistical lifespan difference between male and female

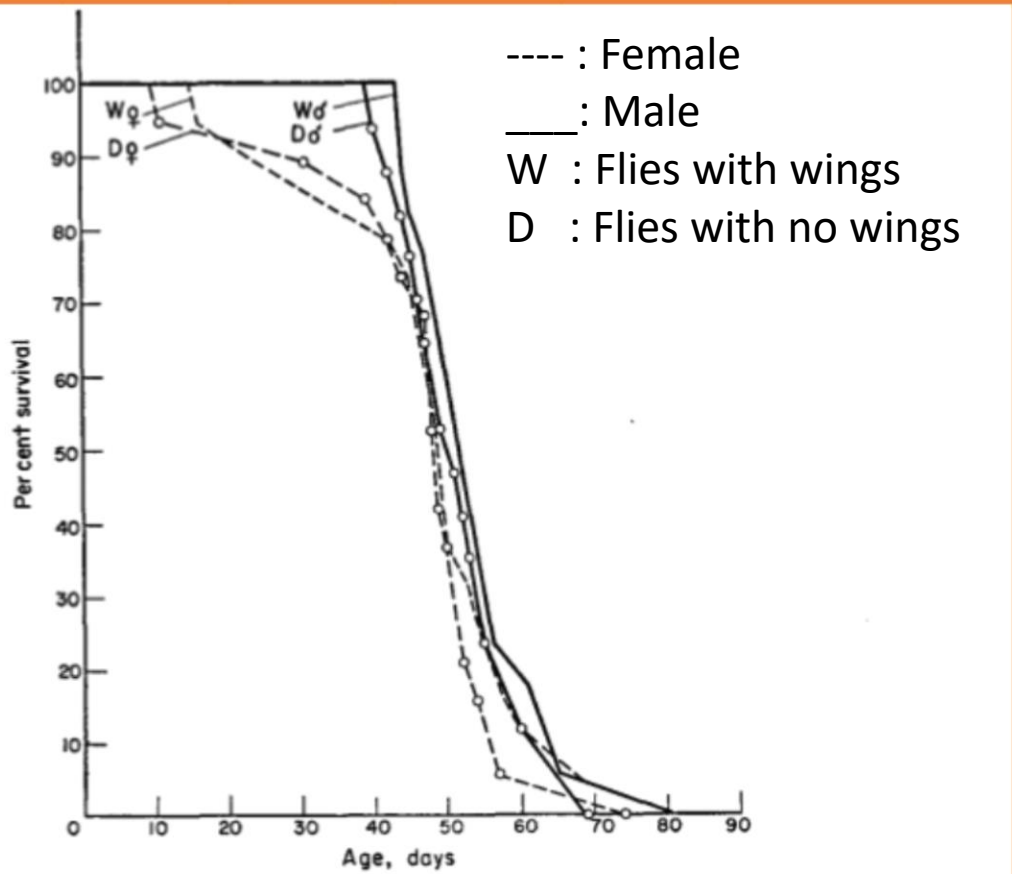

FIG. 5. Survival curves of normal and experimentally-dealated male (solid lines) and female (broken lines) flies individually isolated in 8 dram vials. D, dealated flies; W, normal flies with wings.

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Goldfish have a 3-7 second memory

- Learn basic survival skills
- Memory persists up to 3 months
- Attention span is low
  - Similar to a teenager

https://www.pinterest.com/pin/314477986456807383/?lp=true

Dunlop, R.; Millsopp, S.; Laming, P., *Applied Animal Behaviour Science* **2006,** *97*, 255-271.

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- Memory persists up to 3 months
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  - Similar to a teenager
- Goldfish avoidance learning monitored
- Study
  - 8 fish with electrodes on them
  - “In zone” if tail crosses
  - Stimulus active for 1 hr when in zone

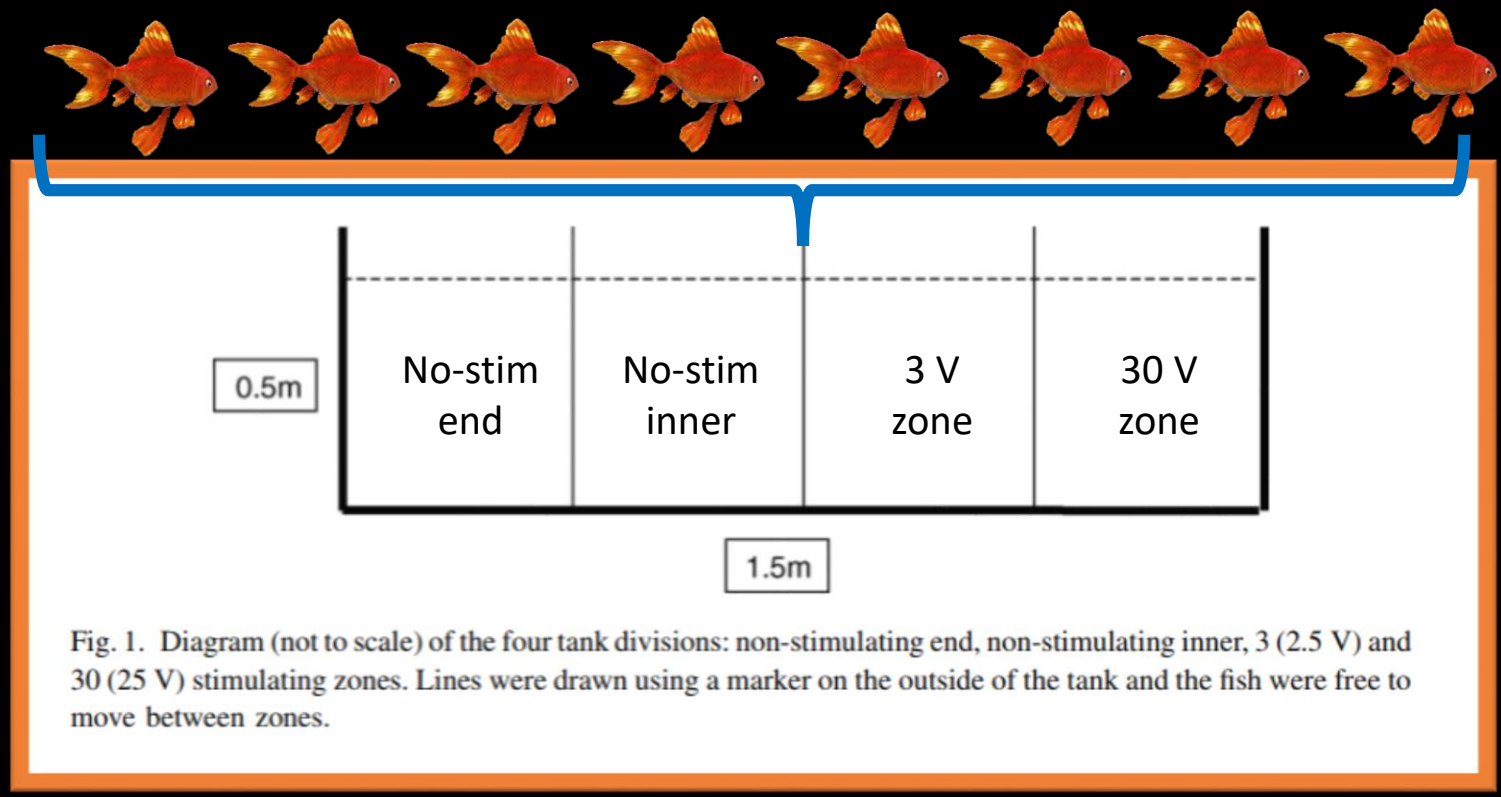

Fig. 1. Diagram (not to scale) of the four tank divisions: non-stimulating end, non-stimulating inner, 3 (2.5 V) and 30 (25 V) stimulating zones. Lines were drawn using a marker on the outside of the tank and the fish were free to move between zones.

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- Study Cycle
  - 8 fish with electrodes on them
  - “In zone” if tail crosses
  - Stimulus active for 1 hr when in zone
- Results
  - Decrease fish in voltage zones after day 1

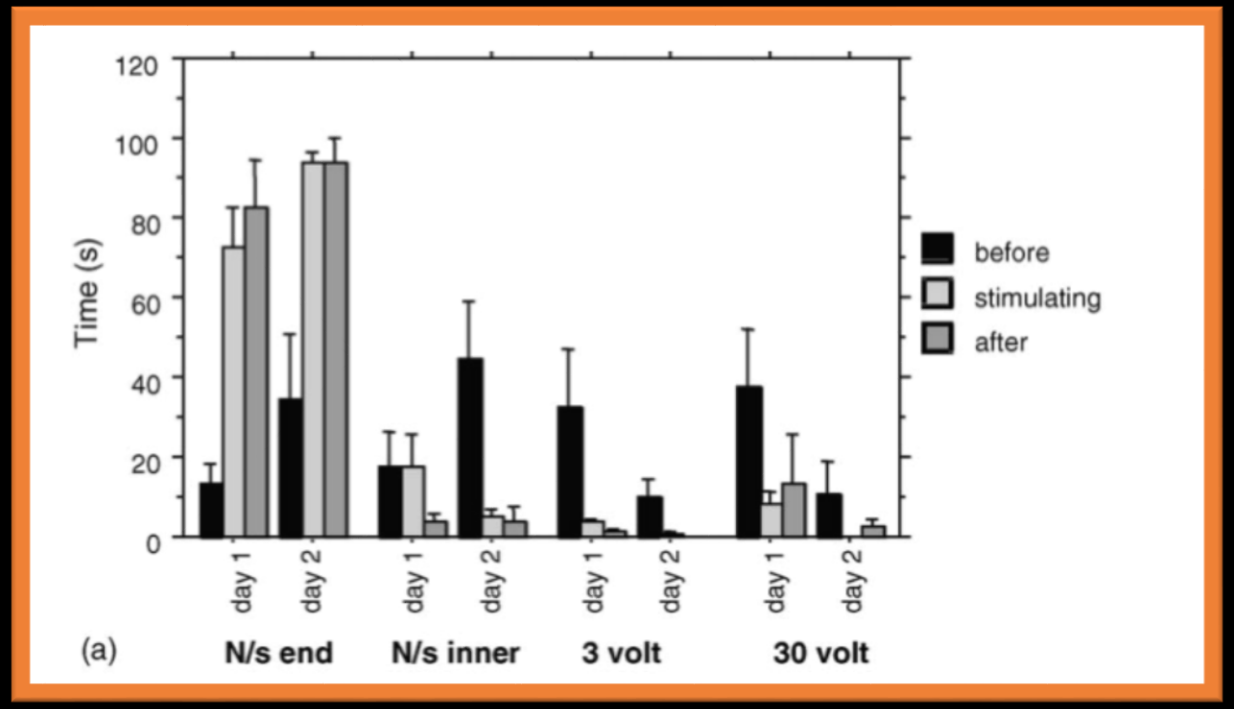

Fig. 2. Mean (±S.E.M.) time (s) spent in each zone, non-stimulating end, non-stimulating inner, 3/2.5 V and 30/25 V zones, during days 1 and 2 in group 1 fish during the three experimental periods, before, during and after stimulating in goldfish (a) and trout (b).

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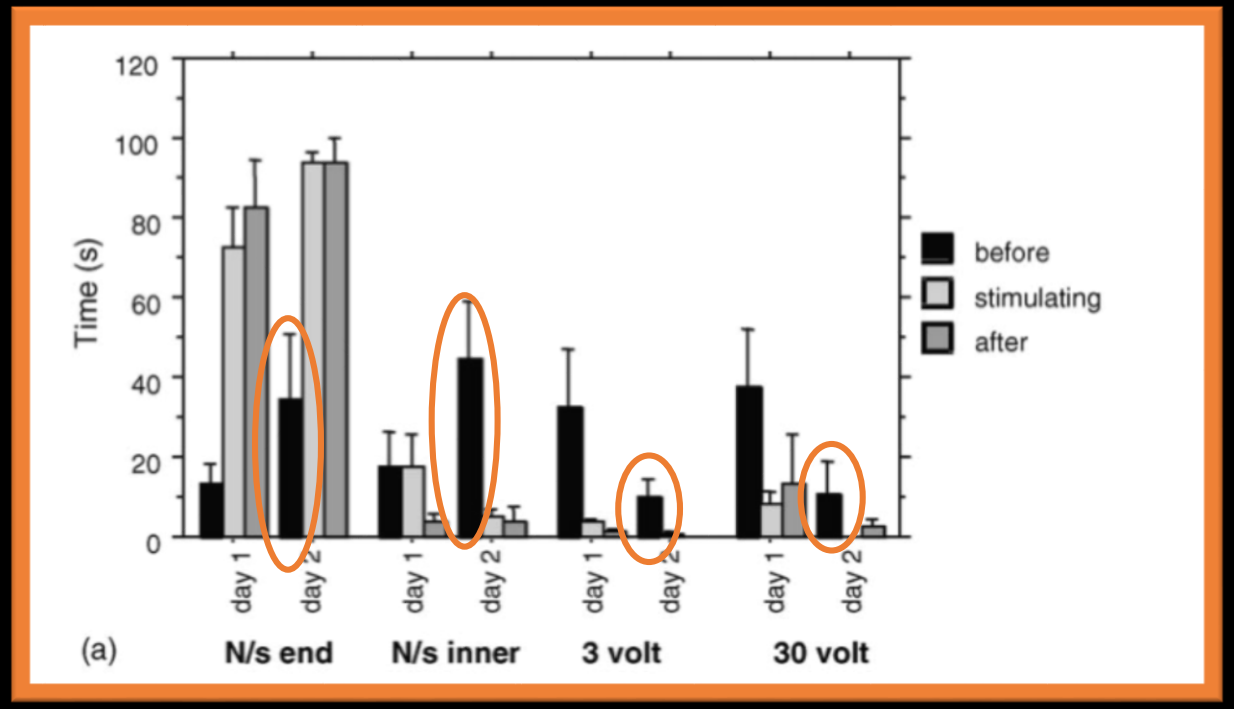

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- Results
  - Decrease response on day 2
  - From less fish in zone or no longer unexpected stimulus???

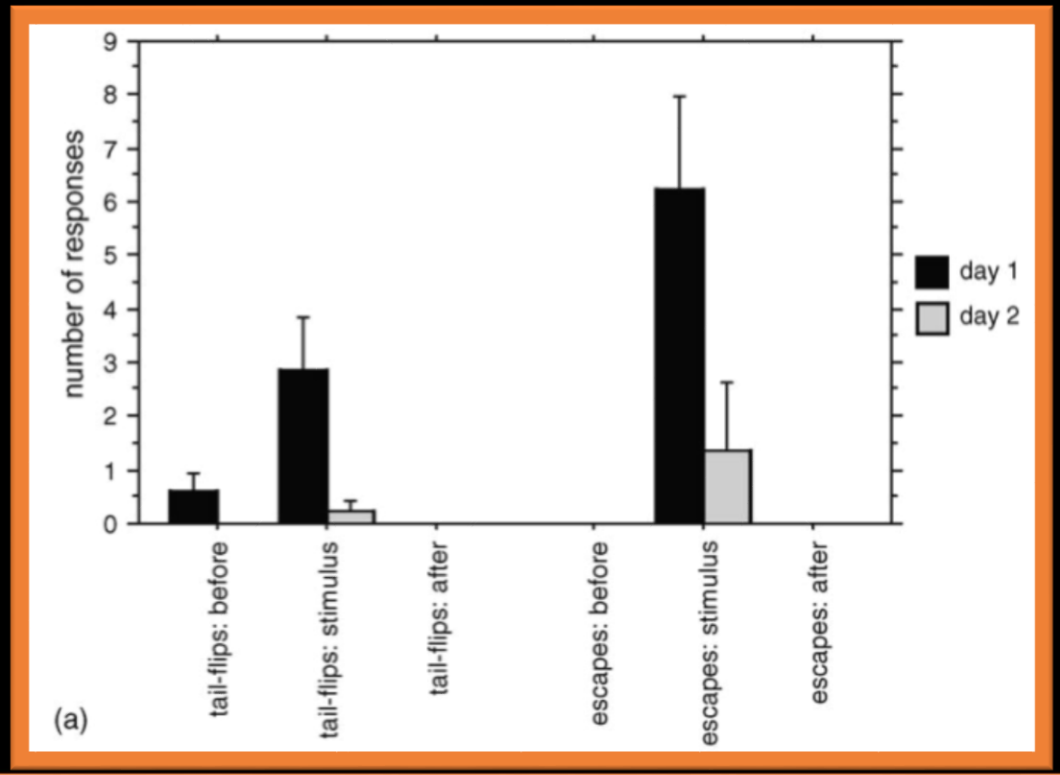

Fig. 3. Mean (±S.E.M.) tail-flip and escape responses, during the experimental period in the first and second day for goldfish (a) and trout (b). An average was taken for each of the three experimental periods, before, during and after stimulating.

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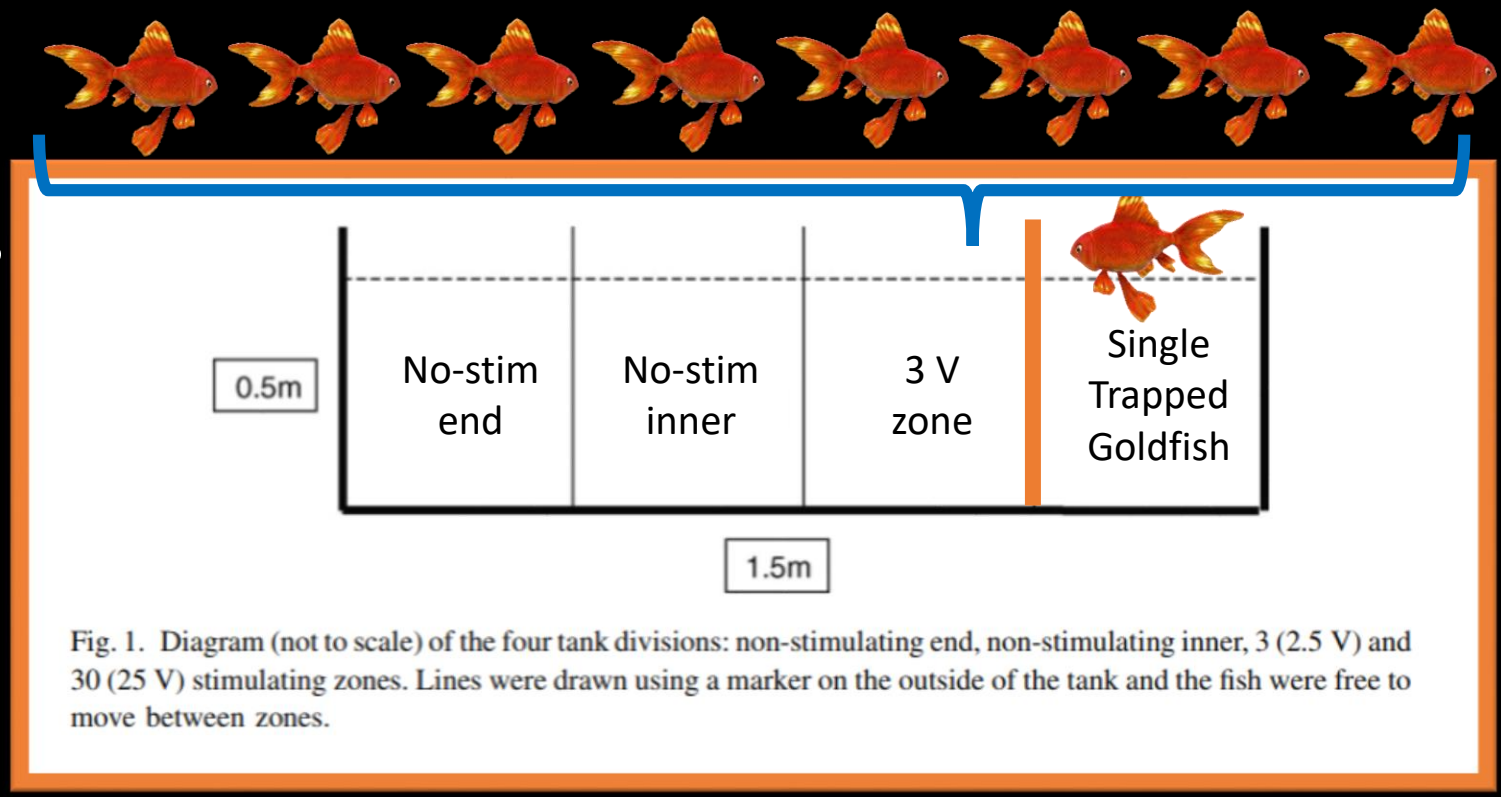

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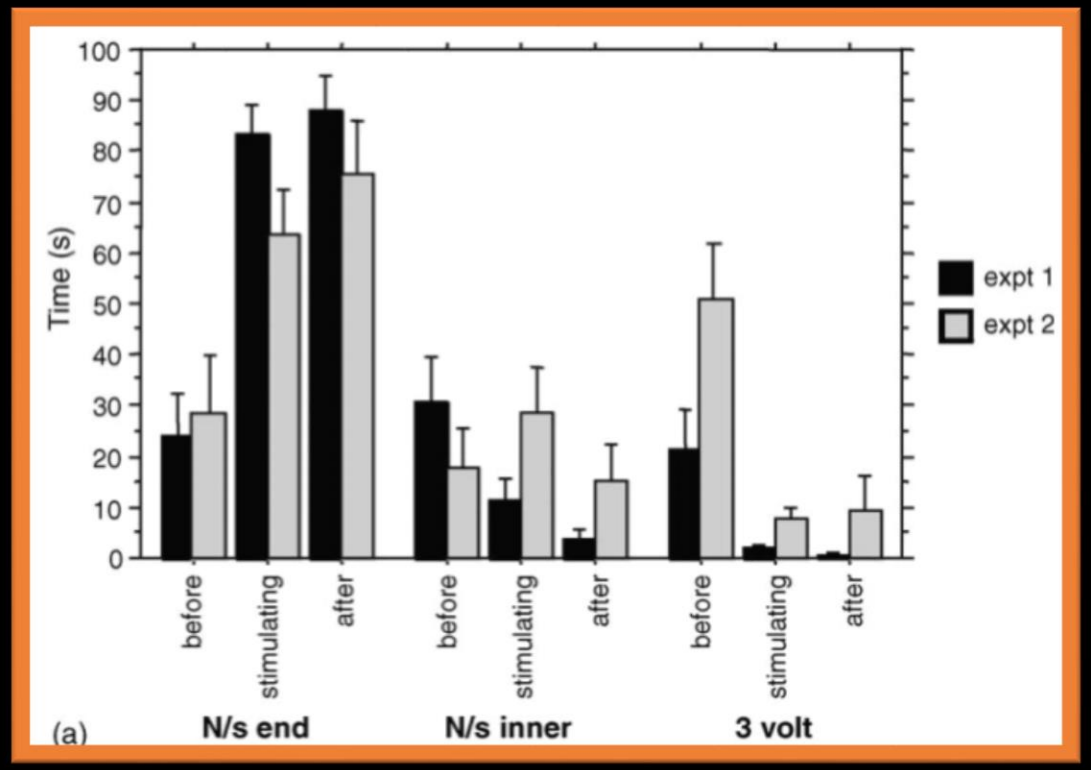

Fig. 4. Mean (±S.E.M.) proportion time (s) spent in the three zones, non-stimulating end, non-stimulating inner and 3/2.5 V zones. A conspecific was present in the fourth zone. (a) Illustrates the time spent in each zone before, during and after the stimulating period in goldfish and (b) in trout.

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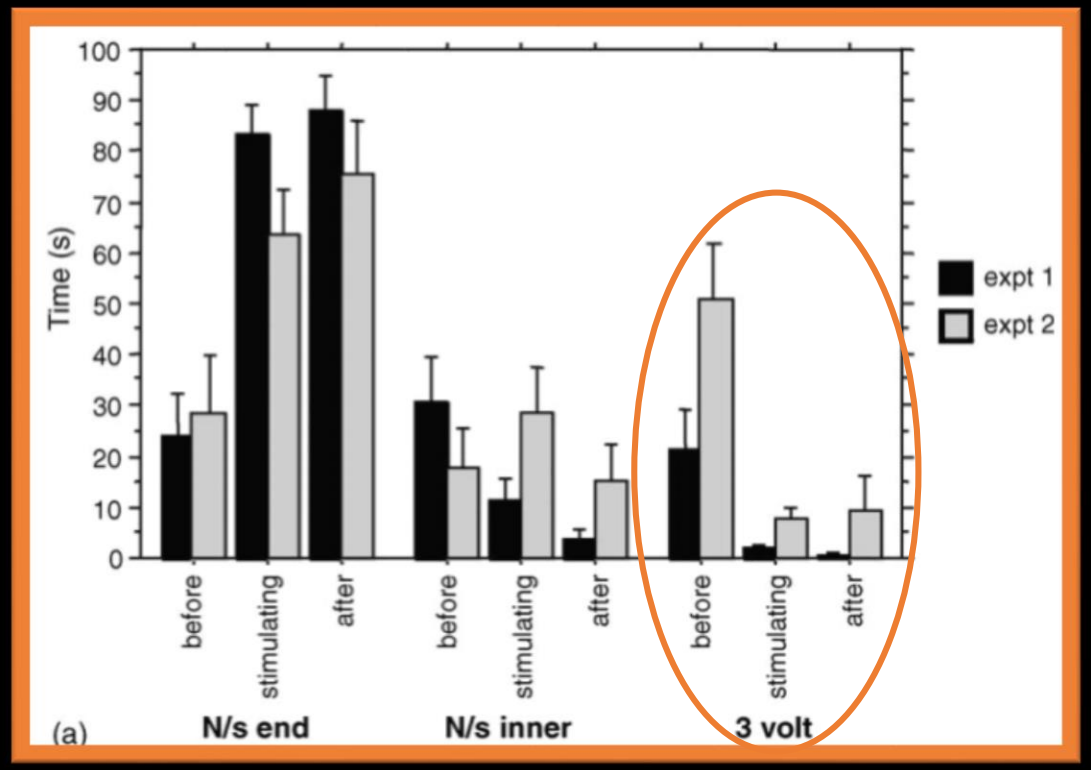

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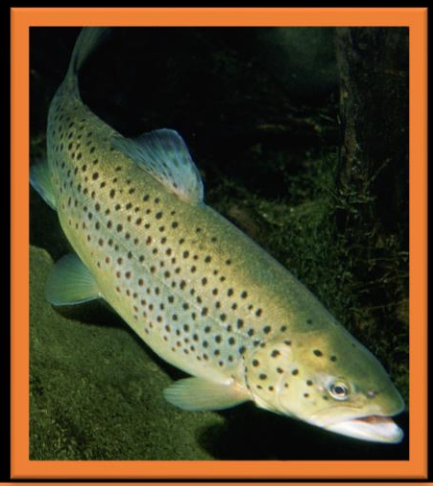

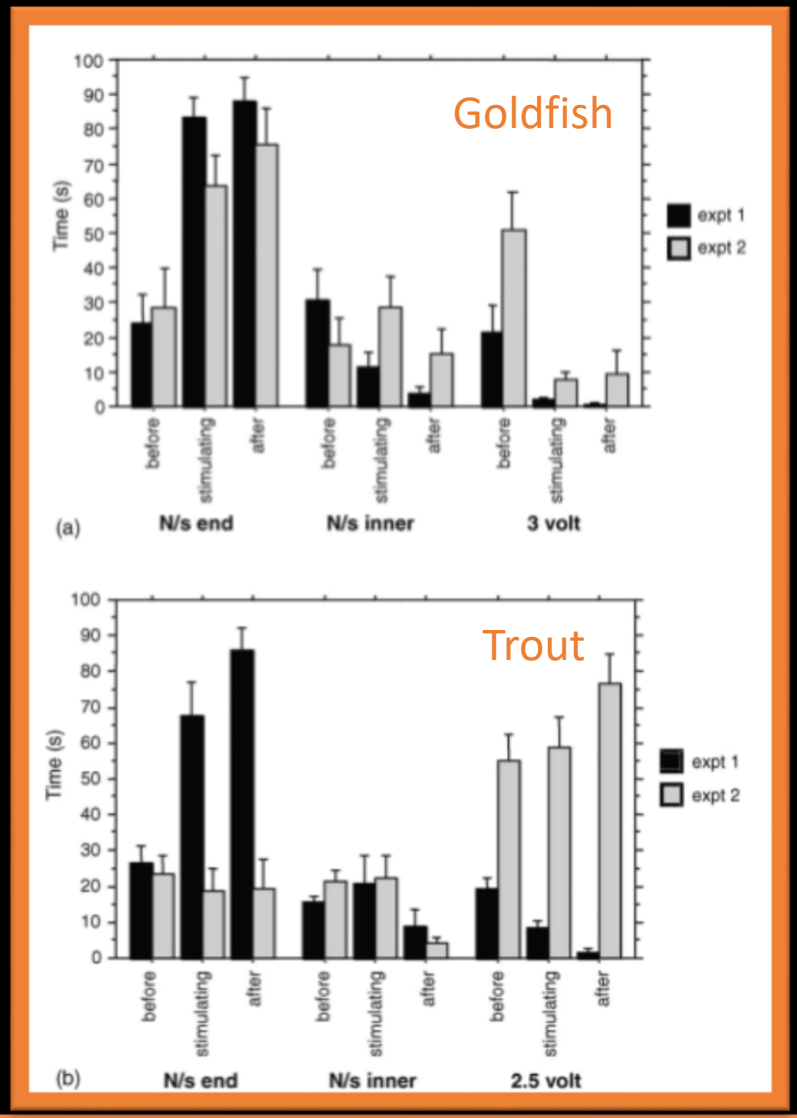

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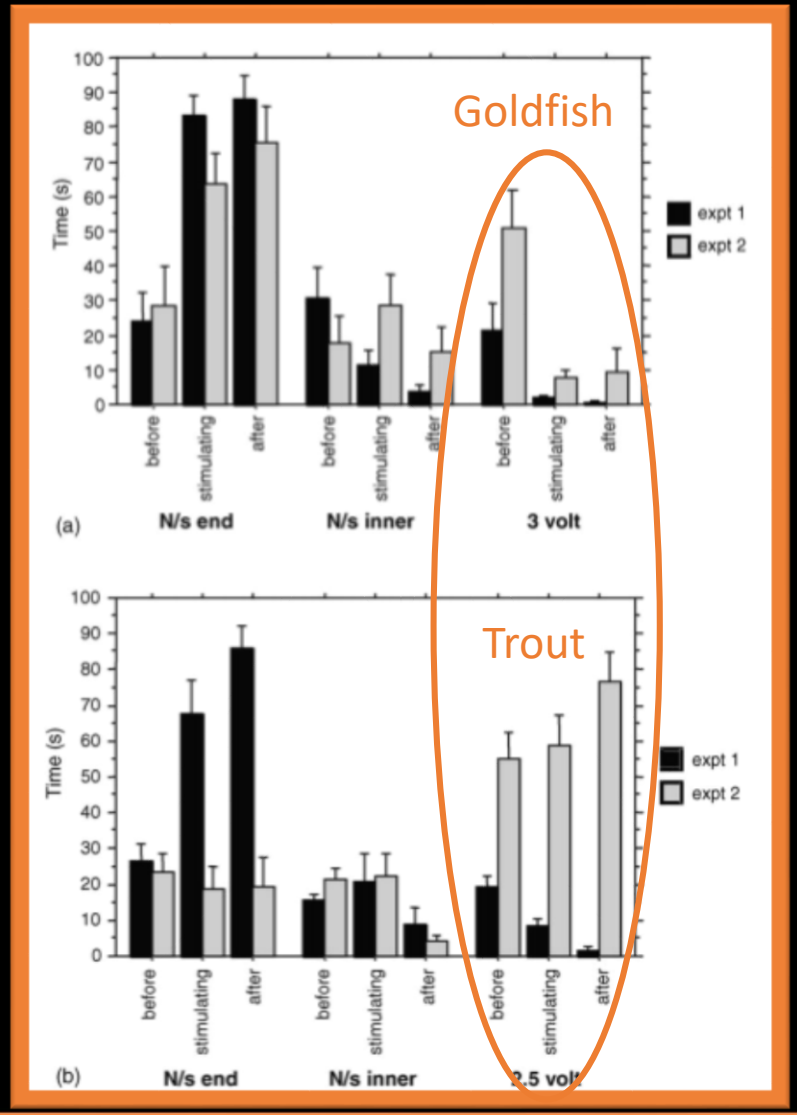

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Elephants are afraid of mice

- No particular fear of mice.
- Myth originated from storybook
- Elephants have poor vision and hearing

https://tvtropes.org/pmwiki/posts.php?discussion=1344618549096540100

Benedict, F. G.; Lee, R. C., *Journal of Mammalogy* **1938,** *19*, 175-194.

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- Study
  - Scientist observed several Circus elephants
  - Fun Facts
    - Captive elephants eat hay and hayseed
    - Mice and rats love both

Location	Scenario	Elephant Reaction

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Circus	Dog barks near elephant	Elephants begin trumpeting

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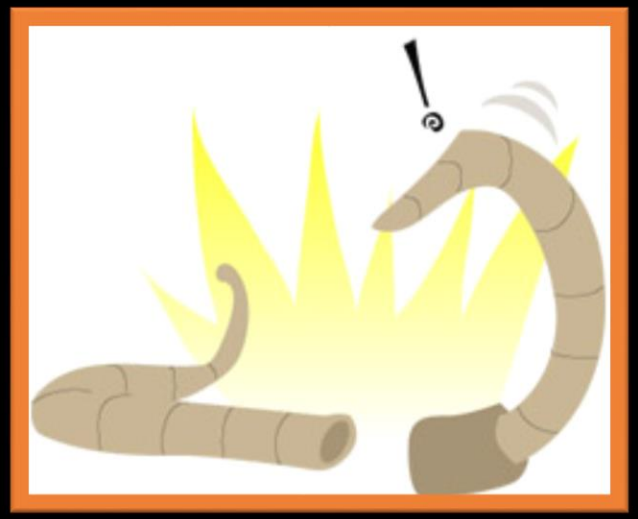
Interested in debunking myths?

Visit: https://thebestschools.org/magazine/25-popular-science-myths-debunked/

There's a lot more to be debunked!



A severed earthworm will regenerated into two earthworms

Ostriches stick their heads in the ground when scared

Opossums sleep while hanging by their tails