

# Linear regression is flexible!

We can modify our functions however we like

- The linear model we are using consists of making the parameters of probability distributions change according to some function
- The simplest function involves a single predictor and slope
- If we have more predictors, we can simply add them to the regression equation

$$y_i \sim N(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta x_i$$



$$y_i \sim N(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta_1 x_{i1} + \beta_2 x_{i2}$$

# Example with more predictors

- **Question:** what's the impact of herbivory on plant fitness?
- **Field experiment:** 40 plants of *Ipomopsis aggregata* assigned at random to two treatments: unprotected from grazing by rabbits and protect from grazing by fenced cages.
- Response variable: fruit yield of each plant (mg dry mass)
- Predictor variables:
  - Treatment: fenced or non-fenced
  - Basal diameter of each plant (mm), measured before the treatment

