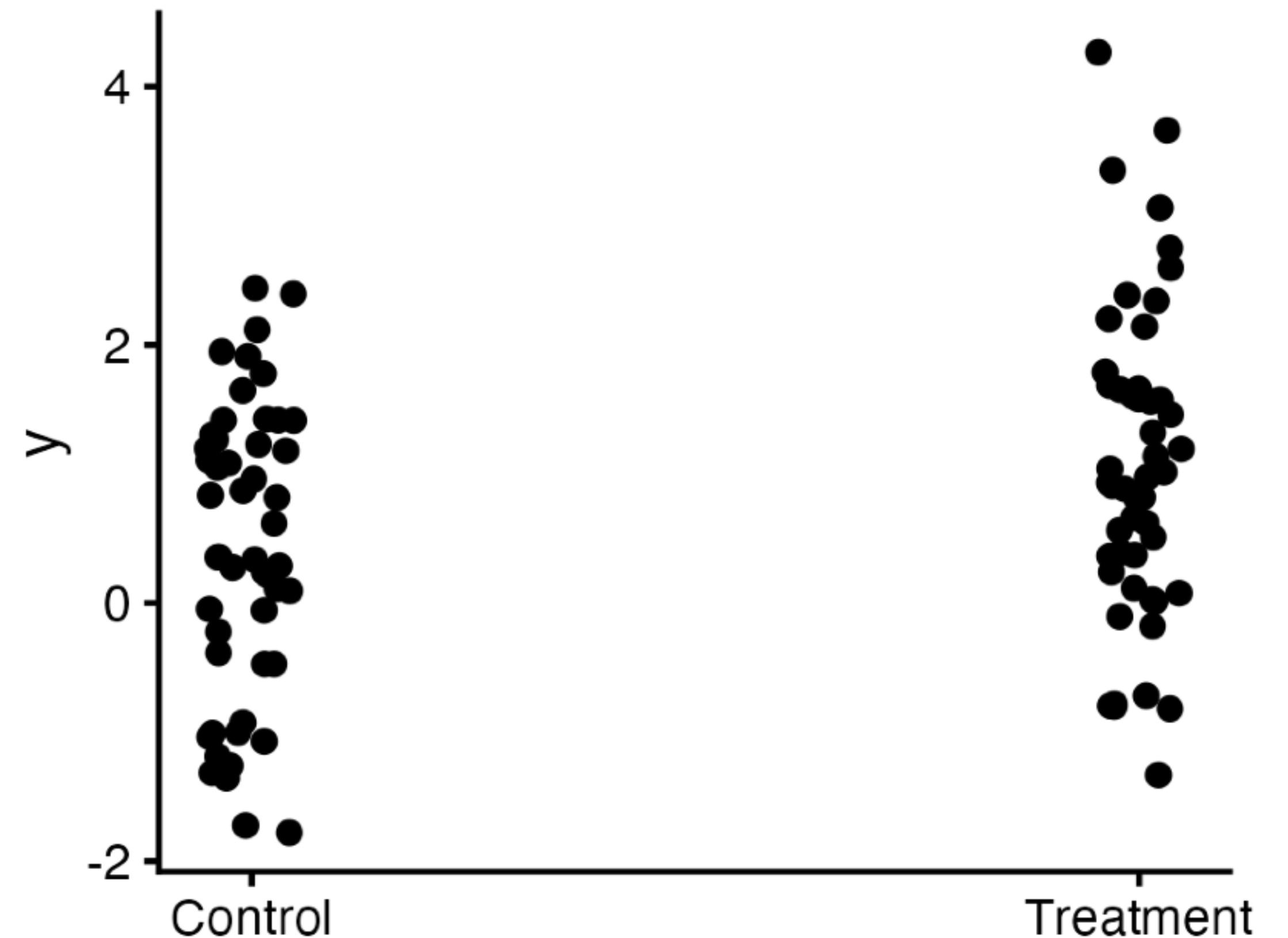# What about categorical predictors?

Linear regression is flexible

- Our questions are frequently based on categories:

  - Is a treatment effective in improving outcomes?

  - Are two geographical regions different in some aspect?

  - Does the diet of a group of species affect their size?

Binary predictor, same model

Control-treatment, two categories...

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

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

- x_i: 0 for control, 1 for treatment

- α: the intercept is the **mean of the Control** group

- β: the slope is the **difference in the means across the groups**

```
> precis(fit, prob = 0.95)
        mean   sd 2.5% 97.5%
a       0.52 0.16 0.20  0.82
b       1.37 0.22 0.96  1.79
sigma   1.08 0.08 0.94  1.23
```