

$$\text{Ability} = \text{Intercept} + \beta_1(\text{Gaming}) + \beta_2(\text{Double Espresso}) + \beta_3(\text{Single Espresso}) + \varepsilon$$

Add the covariate to our model *before* the experimental factor:

```
> lm2 <- lm(Ability ~ Gaming + Condition, data = cond)
> lm2
```

```
Call:
lm(formula = Ability ~ Gaming + Condition, data = cond)
```

```
Coefficients:
              (Intercept)              Gaming  ConditionDouble Espresso  ConditionSingle Espresso
                -3.4498                0.8538                -1.0085                -0.4563
```

$$\text{Ability} = \text{Intercept} + \beta_1(\text{Gaming}) + \beta_2(\text{Double Espresso}) + \beta_3(\text{Single Espresso}) + \varepsilon$$

The β_2 and β_3 coefficients tell us the difference between each group mean (i.e., the adjusted mean) compared to the reference Group (Water) when taking into account the covariate of Gaming frequency:

β_2 is the difference between the Double Espresso and Water group adjusted means (= -1.01) while β_3 is the difference between the Double Espresso and Water group adjusted means (= -0.46)...