- We can use another loop to run `i` number of independent sample t-tests and to save the results of each test to a new data frame we are calling `result`

```
result <- NULL

for  (i in 1:total_samples) {
  result <- rbind(tidy(t.test(filter(all_data, condition == "fast" & sample == i)$dv,
              filter(all_data, condition == "slow" & sample == i)$dv,
              paired = FALSE)), result)
}
```

```
> result
# A tibble: 100 x 10
   estimate estimate1 estimate2 statistic p.value parameter conf.low conf.high method                alternative
      <dbl>     <dbl>     <dbl>     <dbl>   <dbl>     <dbl>    <dbl>     <dbl> <chr>                 <chr>
 1     6.5      1013.     1007.     0.364   0.720      20.2    -30.7     43.7  Welch Two Sample t-test two.sided
 2   -15        1000.     1015.    -0.695   0.494      22.0    -59.7     29.7  Welch Two Sample t-test two.sided
 3     7.92     1019.     1011.     0.445   0.661      21.0    -29.1     44.9  Welch Two Sample t-test two.sided
 4   -16.4       984.     1000.    -0.697   0.493      22.0    -65.3     32.5  Welch Two Sample t-test two.sided
 5   -10.8      1002.     1012.    -0.517   0.612      16.9    -54.7     33.2  Welch Two Sample t-test two.sided
 6     7.25     1000.      993      0.359   0.723      20.4    -34.8     49.3  Welch Two Sample t-test two.sided
 7   -35         994.     1030.    -1.66    0.113      20.6    -79.0      8.99 Welch Two Sample t-test two.sided
 8   -27.5       983      1010.    -1.40    0.175      21.8    -68.2     13.2  Welch Two Sample t-test two.sided
 9     4.83     1026.     1021.     0.246   0.808      18.3    -36.3     46.0  Welch Two Sample t-test two.sided
10   -35.8       996.     1032     -1.58    0.130      18.9    -83.2     11.5  Welch Two Sample t-test two.sided
# ... with 90 more rows
```

- We can work out for how many of the 100 tests we have found a significant difference at < .05 - and remember, there is actually a real difference (of 20 ms.) in the two population distributions we sampled from!

```
> count(filter(result, p.value < .05))
# A tibble: 1 x 1
      n
  <int>
1    17
```

- So, less than a fifth of the time are we finding a significant difference even though one exists in the distributions we sampled from. So with a sample size of 24 (12 per group) power to detect the effect we are looking for is .17