

Tissue Weights for Muscle Tsc1 Knockout Mice on HFD

Dave Bridges and Erin Stephenson

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1 Purpose

To determine tissue weights at sacrifice for fat pads and muscle tissues

2 Experimental Details

At sacrifice, after a 16h fast data were entered and collected in the raw data sheet

These data can be found in `/Users/davebrid/Documents/GitHub/TissueSpecificTscKnockouts/Mouse Data/Muscle Tsc1 Knockout/HFD/Sacrifice Analysis` in a file named **HFD Sacrifice Data.xlsx**.

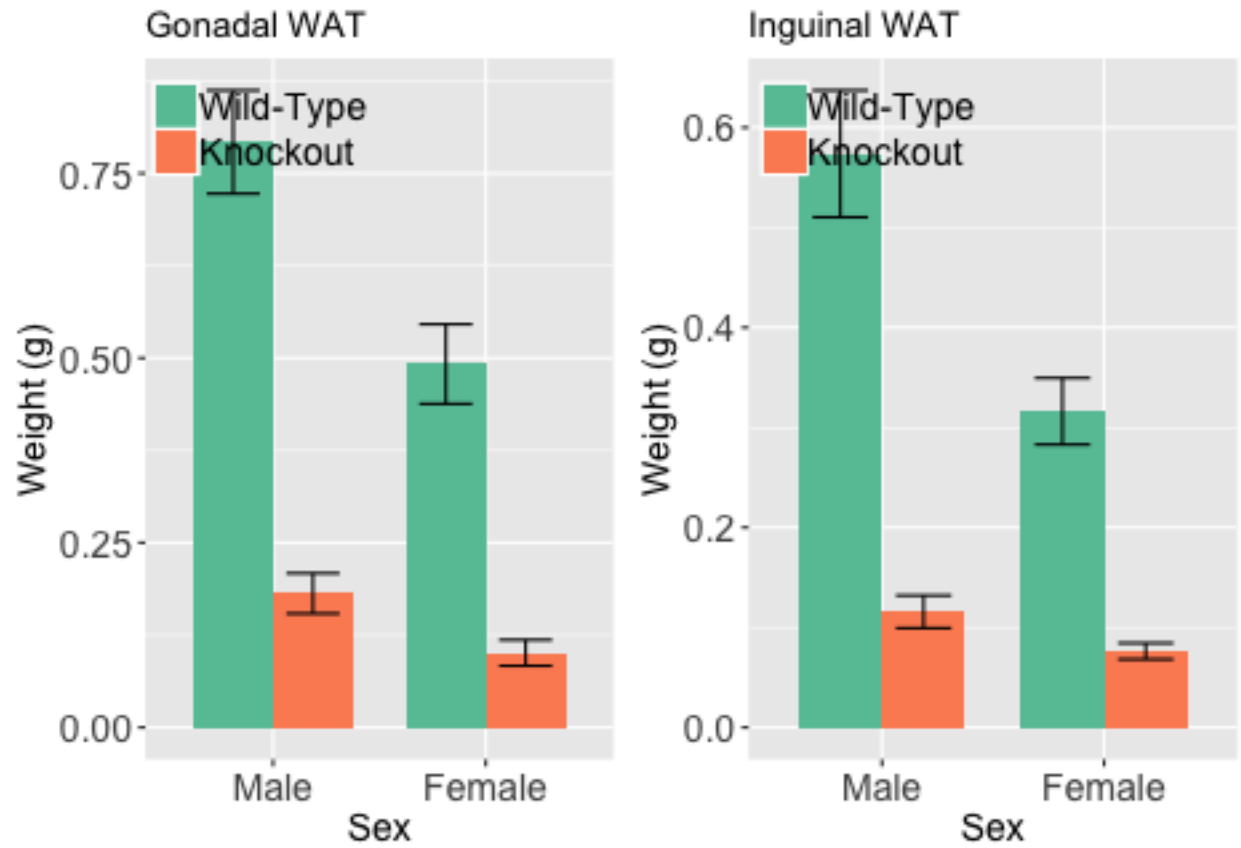
This script was most recently updated on **Mon May 20 08:27:24 2019**.

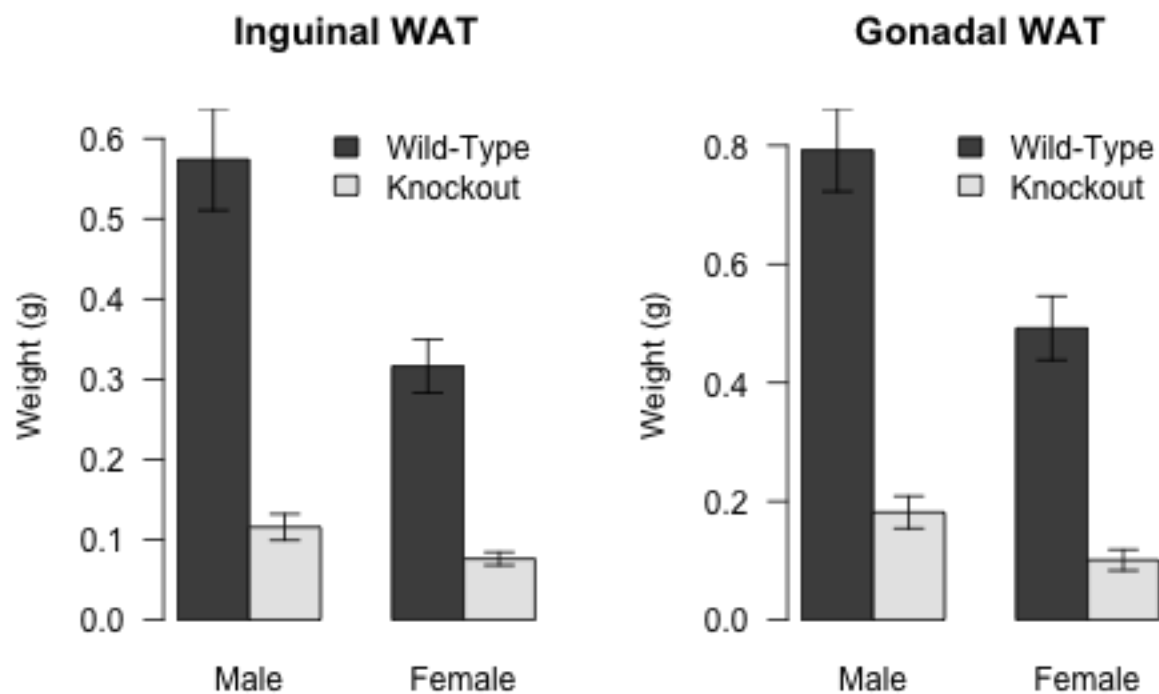
3 Analysis

| Sex | GonadalWAT_mean.na | InguinalWAT_mean.na | Quadriceps_mean.na | TricepsSurae_mean.na | Heart_mean.na |
|--------|--------------------|---------------------|--------------------|----------------------|---------------|
| Male | 0.792 | 0.574 | 0.224 | 0.172 | 0.101 |
| Male | 0.181 | 0.116 | 0.192 | 0.156 | 0.076 |
| Female | 0.492 | 0.316 | 0.166 | 0.132 | 0.081 |
| Female | 0.101 | 0.076 | 0.142 | 0.121 | 0.076 |

| Sex | GonadalWAT_length | InguinalWAT_length | Quadriceps_length | TricepsSurae_length | Heart_length |
|--------|-------------------|--------------------|-------------------|---------------------|--------------|
| Male | 25 | 25 | 25 | 25 | 25 |
| Male | 7 | 7 | 7 | 7 | 7 |
| Female | 53 | 53 | 53 | 53 | 53 |
| Female | 8 | 8 | 8 | 8 | 8 |

3.1 Fat Pad Weights





For the male mice, the fat pads were reduced in weight:

Table 3: Changes in Gonadal Fat Pad Weights

| Sex | Wild-Type | Knockout | Difference | Pct.Difference |
|--------|-----------|----------|------------|----------------|
| Male | 0.792 | 0.181 | 0.611 | 77.1 |
| Female | 0.492 | 0.101 | 0.391 | 79.5 |

Table 4: Changes in Inguinal Fat Pad Weights

| Sex | Wild-Type | Knockout | Difference | Pct.Difference |
|--------|-----------|----------|------------|----------------|
| Male | 0.574 | 0.116 | 0.458 | 79.8 |
| Female | 0.316 | 0.076 | 0.240 | 75.9 |

Table 5: Shapiro-Wilk Tests for each group

| Sex | Knockout | InguinalWAT_shapiro.p | GonadalWAT_shapiro.p |
|--------|----------|-----------------------|----------------------|
| Male | FALSE | 0.400 | 0.172 |
| Male | TRUE | 0.856 | 0.319 |
| Female | FALSE | 0.000 | 0.000 |
| Female | TRUE | 0.703 | 0.975 |

Table 6: Pairwise tests for effects of knockout on Inguinal WAT weights.

| Sex | Levene | Mann.Whitney | Welch | Student |
|--------|--------|--------------|-------|---------|
| Female | 0.018 | 0.001 | 0 | 0.007 |
| Male | 0.008 | 0.000 | 0 | 0.002 |

Table 7: Pairwise tests for effects of knockout on Gonadal WAT weights.

| Sex | Levene | Mann.Whitney | Welch | Student |
|--------|--------|--------------|-------|---------|
| Female | 0.016 | 0 | 0 | 0.007 |
| Male | 0.009 | 0 | 0 | 0.000 |

For the male mice, normality can be assumed, but not equal variance, so a Welch’s t-test is used, which had a p-value of 9.802×10^{-7} for inguinal WAT and 4.917×10^{-8} for gonadal WAT.

For the female mice, normality cannot be assumed so a Mann-Whitney test is used, which had a p-value of 0.001 for inguinal WAT and 0 for gonadal WAT.

3.2 Muscle Weights

4 Session Information

```
sessionInfo()
```

```
## R version 3.5.0 (2018-04-23)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS 10.14.4
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods    base
##
## other attached packages:
## [1] car_3.0-2          carData_3.0-2      forcats_0.3.0
## [4] gridExtra_2.3      ggplot2_3.1.0      RColorBrewer_1.1-2
## [7] bindrcpp_0.2.2     readxl_1.2.0       dplyr_0.7.8
## [10] tidyr_0.8.2        knitr_1.21
##
## loaded via a namespace (and not attached):
## [1] zip_1.0.0          Rcpp_1.0.0         pillar_1.3.1
## [4] compiler_3.5.0     cellranger_1.1.0   highr_0.7
```

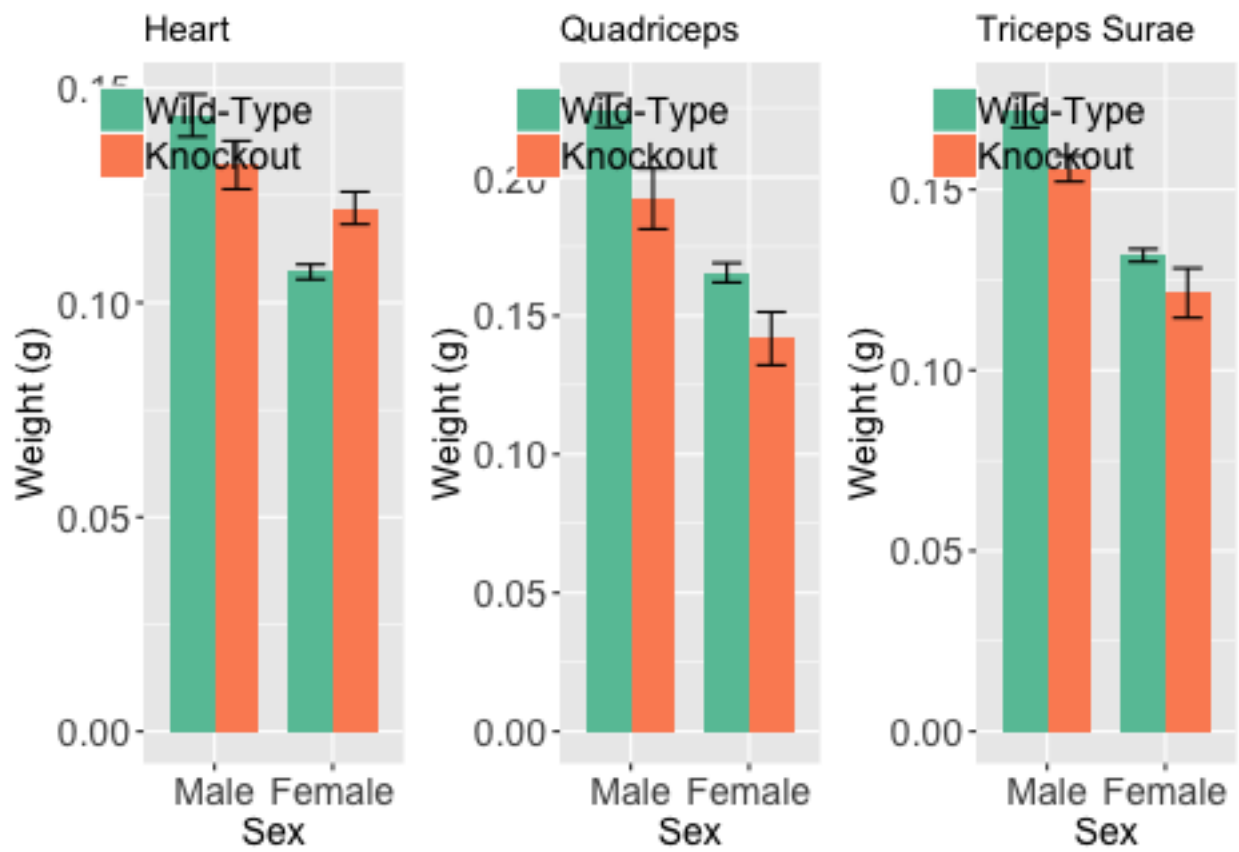


Figure 1: Weights of Muscle Depots at Sacrifice

| | | | |
|---------|-------------------|-----------------|------------------|
| ## [7] | plyr_1.8.4 | bindr_0.1.1 | tools_3.5.0 |
| ## [10] | digest_0.6.18 | evaluate_0.12 | tibble_2.0.0 |
| ## [13] | gtable_0.2.0 | pkgconfig_2.0.2 | rlang_0.3.1 |
| ## [16] | openxlsx_4.1.0 | cli_1.0.1 | curl_3.2 |
| ## [19] | yaml_2.2.0 | haven_2.0.0 | xfun_0.4 |
| ## [22] | rio_0.5.16 | withr_2.1.2 | stringr_1.3.1 |
| ## [25] | hms_0.4.2 | grid_3.5.0 | tidyselect_0.2.5 |
| ## [28] | data.table_1.11.8 | glue_1.3.0 | R6_2.3.0 |
| ## [31] | fansi_0.4.0 | foreign_0.8-71 | rmarkdown_1.11 |
| ## [34] | purrr_0.2.5 | magrittr_1.5 | scales_1.0.0 |
| ## [37] | htmltools_0.3.6 | abind_1.4-5 | assertthat_0.2.0 |
| ## [40] | colorspace_1.3-2 | labeling_0.3 | utf8_1.1.4 |
| ## [43] | stringi_1.2.4 | lazyeval_0.2.1 | munsell_0.5.0 |
| ## [46] | crayon_1.3.4 | | |