

Muscle Tsc1 Knockout Food Preference Test

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These data can be found in `/Users/davebrid/Documents/GitHub/TissueSpecificTscKnockouts/Mouse Data/Muscle Tsc1 Knockout` in a file named `mTSC Macronutrient Preference.csv`. This script was most recently updated on **Fri Mar 27 09:52:58 2020**.

1 Analysis

Table 1: Animals enrolled in this study

Sex	Genotype	n
M	fl/fl;+/+	6
M	fl/fl;tg/+	9
F	fl/fl;+/+	11
F	fl/fl;tg/+	9

Table 2: Calculated data for each cage.

ear.tag	Sex	Genotype	KDC	KD	Total	KD.Pref	KD.Pct
7454	M	fl/fl;+/+	0.2	2.2	2.4	11.000	91.7
7461	M	fl/fl;+/+	0.1	1.9	2.0	19.000	95.0
7462	M	fl/fl;+/+	0.1	2.1	2.2	21.000	95.5
7766	M	fl/fl;+/+	6.4	4.8	11.2	0.750	42.9
7928	M	fl/fl;+/+	0.9	7.4	8.3	8.222	89.2
7929	M	fl/fl;+/+	0.4	4.1	4.5	10.250	91.1
7428	F	fl/fl;+/+	0.6	6.6	7.2	11.000	91.7
7429	F	fl/fl;+/+	0.5	7.6	8.1	15.200	93.8
7431	F	fl/fl;+/+	3.6	4.8	8.4	1.333	57.1
7896	F	fl/fl;+/+	8.6	4.2	12.8	0.488	32.8
7931	F	fl/fl;+/+	7.0	6.4	13.4	0.914	47.8

ear.tag	Sex	Genotype	KDC	KD	Total	KD.Pref	KD.Pct
7932	F	fl/fl;+/+	5.4	6.9	12.3	1.278	56.1
8336	F	fl/fl;+/+	-1.1	6.0	4.9	-5.455	122.4
8337	F	fl/fl;+/+	2.4	5.7	8.1	2.375	70.4
8338	F	fl/fl;+/+	-0.8	5.9	5.1	-7.375	115.7
8339	F	fl/fl;+/+	7.5	5.5	13.0	0.733	42.3
8379	F	fl/fl;+/+	8.6	4.6	13.2	0.535	34.8
7425	M	fl/fl;tg/+	NA	3.1	NA	NA	NA
7426	M	fl/fl;tg/+	7.5	2.7	10.2	0.360	26.5
7427	M	fl/fl;tg/+	1.5	9.1	10.6	6.067	85.8
7455	M	fl/fl;tg/+	NA	0.1	NA	NA	NA
7456	M	fl/fl;tg/+	0.5	2.7	3.2	5.400	84.4
7555	M	fl/fl;tg/+	3.3	NA	NA	NA	NA
7893	M	fl/fl;tg/+	3.7	8.3	12.0	2.243	69.2
7894	M	fl/fl;tg/+	6.5	6.5	13.0	1.000	50.0
7927	M	fl/fl;tg/+	6.6	2.4	9.0	0.364	26.7
7457	F	fl/fl;tg/+	0.9	2.8	3.7	3.111	75.7
7460	F	fl/fl;tg/+	2.3	1.2	3.5	0.522	34.3
7464	F	fl/fl;tg/+	0.4	1.6	2.0	4.000	80.0
7466	F	fl/fl;tg/+	1.2	2.4	3.6	2.000	66.7
7467	F	fl/fl;tg/+	0.4	2.3	2.7	5.750	85.2
7897	F	fl/fl;tg/+	1.9	8.1	10.0	4.263	81.0
7898	F	fl/fl;tg/+	17.5	6.3	23.8	0.360	26.5
7899	F	fl/fl;tg/+	14.1	7.5	21.6	0.532	34.7
8380	F	fl/fl;tg/+	23.7	4.2	27.9	0.177	15.1

Sex	Genotype	Preference	Preference.Error	PReference.SD	Percent	Percent.Error	N
M	fl/fl;+/+	11.70	3.024	7.41	84.2	8.33	6
M	fl/fl;tg/+	2.57	0.851	NA	57.1	8.98	9
F	fl/fl;+/+	1.91	1.923	6.38	69.5	9.59	11
F	fl/fl;tg/+	2.30	0.687	2.06	55.5	9.15	9

1.1 Statistics

Table 4: Genotype and Sex Dependent Effects on Relative Preference.

term	estimate	std.error	statistic	p.value
(Intercept)	8.74	1.91	4.59	0.000
SexF	-5.21	2.06	-2.54	0.017
Genotypefl/fl;tg/+	-3.20	2.00	-1.61	0.119

Table 5: Genotype and Sex Dependent Effects on Relative Preference. Model with moderating effect of sex on genotype.

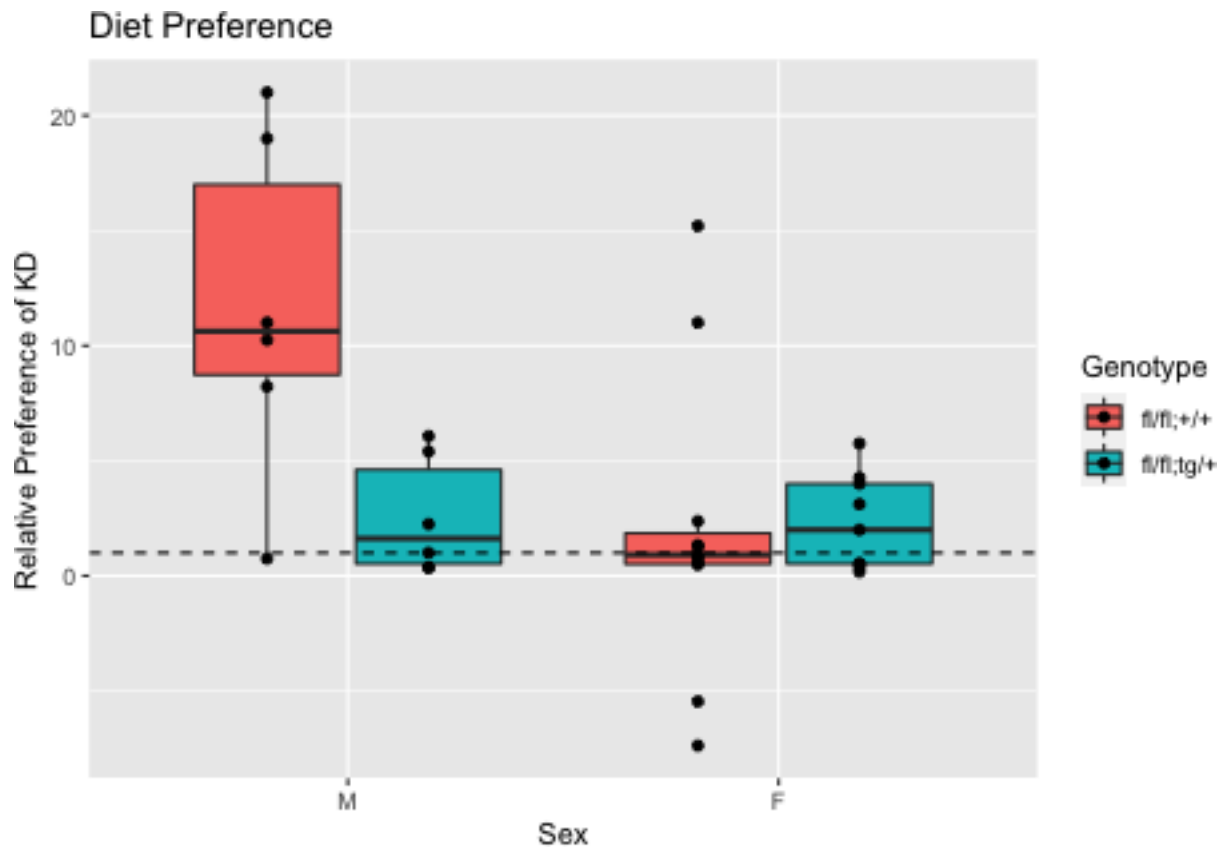
term	estimate	std.error	statistic	p.value
(Intercept)	11.70	2.11	5.55	0.000
SexF	-9.79	2.62	-3.73	0.001

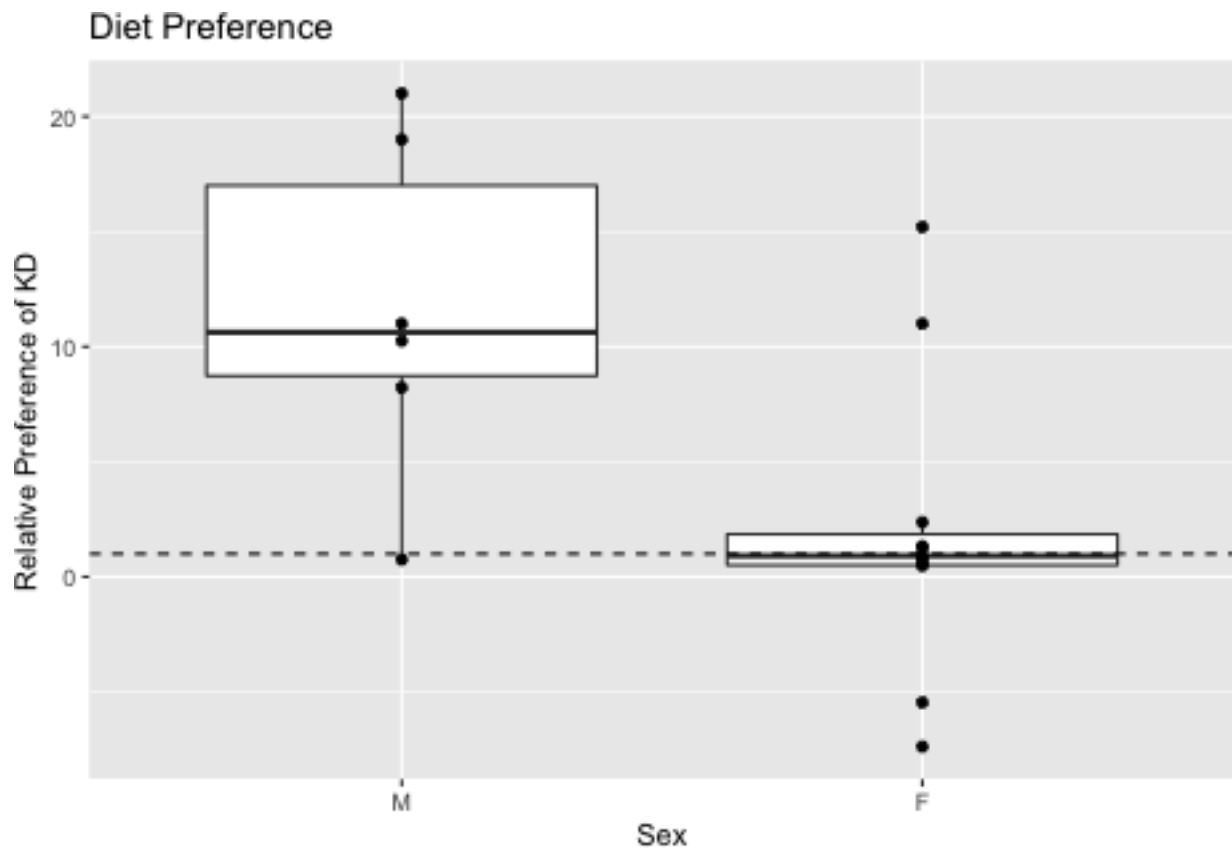
term	estimate	std.error	statistic	p.value
Genotype $fl/fl;tg/+$	-9.13	2.98	-3.06	0.005
SexF:Genotype $fl/fl;tg/+$	9.52	3.78	2.52	0.018

Table 6: Sex Dependent Effects on Relative Preference, wild-type only.

term	estimate	std.error	statistic	p.value
(Intercept)	11.70	2.75	4.25	0.001
SexF	-9.79	3.42	-2.86	0.012

1.2 Boxplots





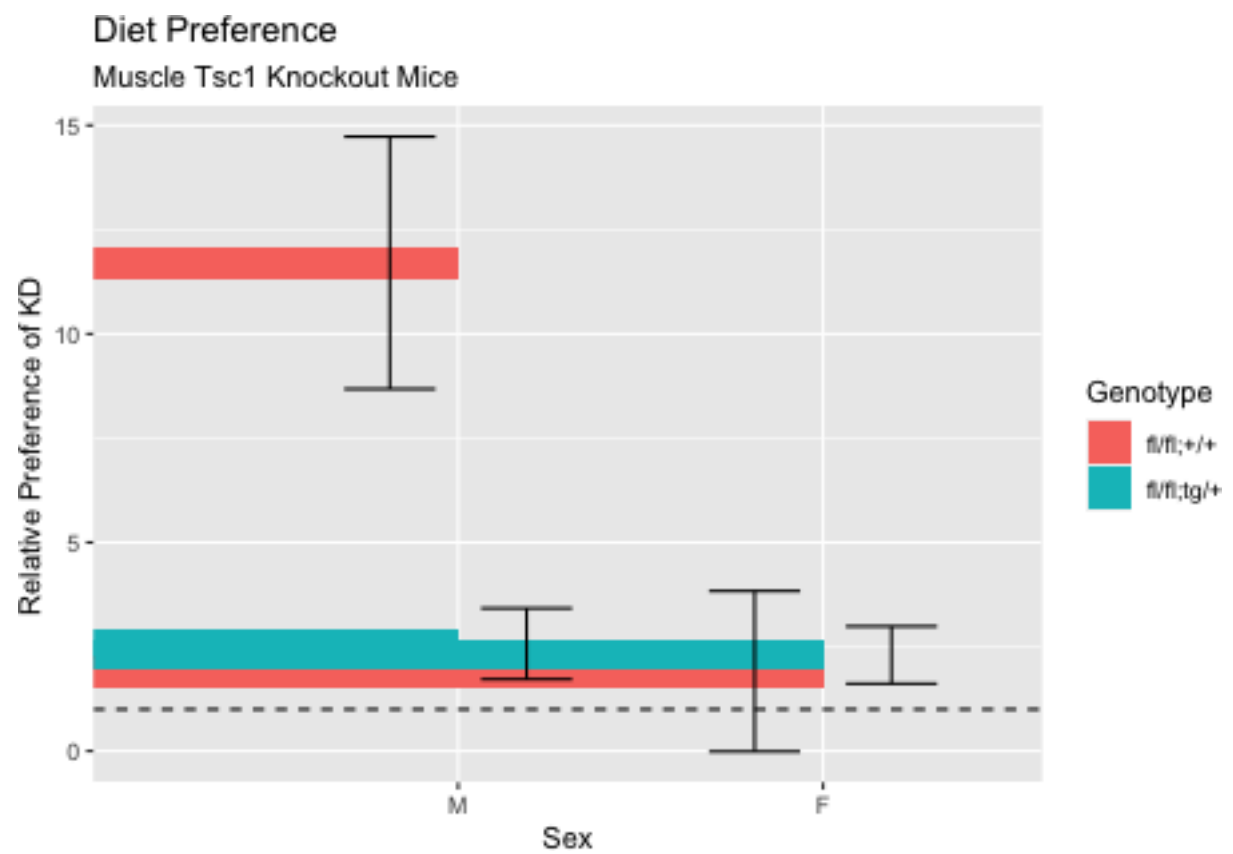
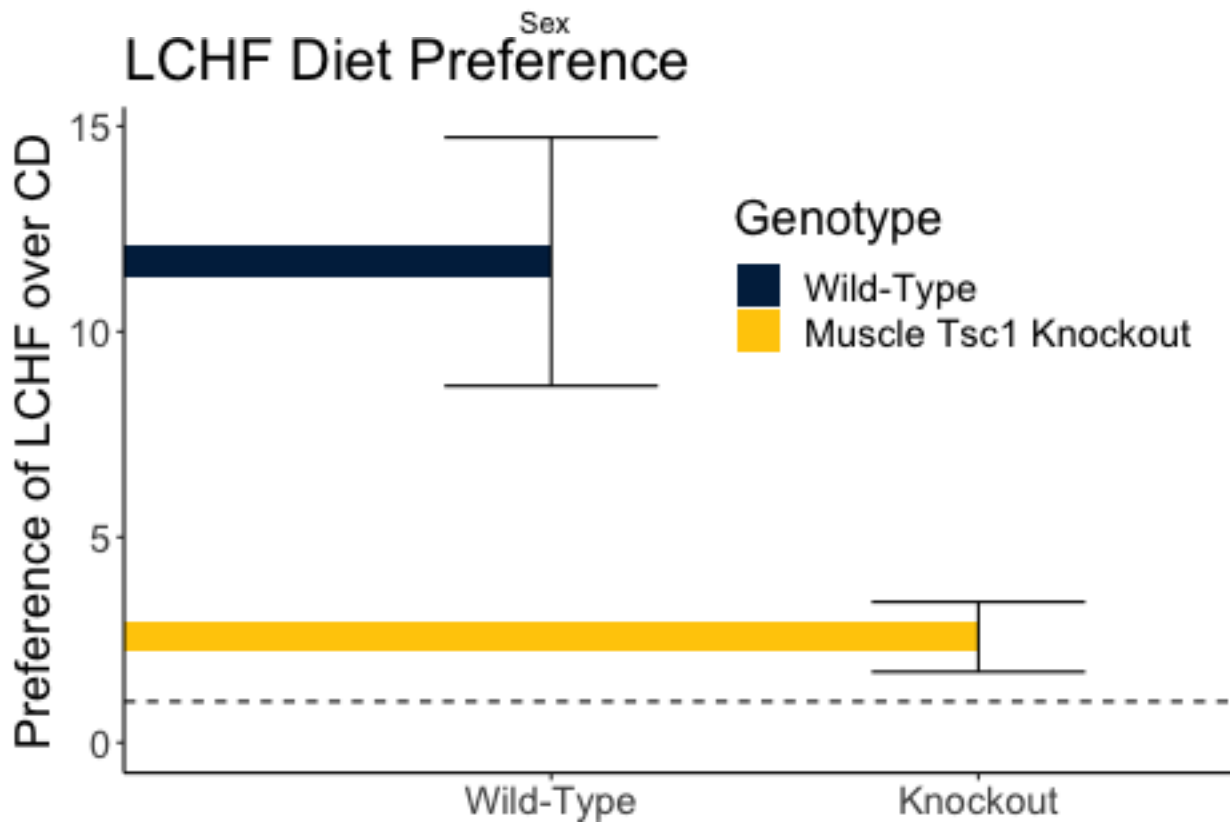
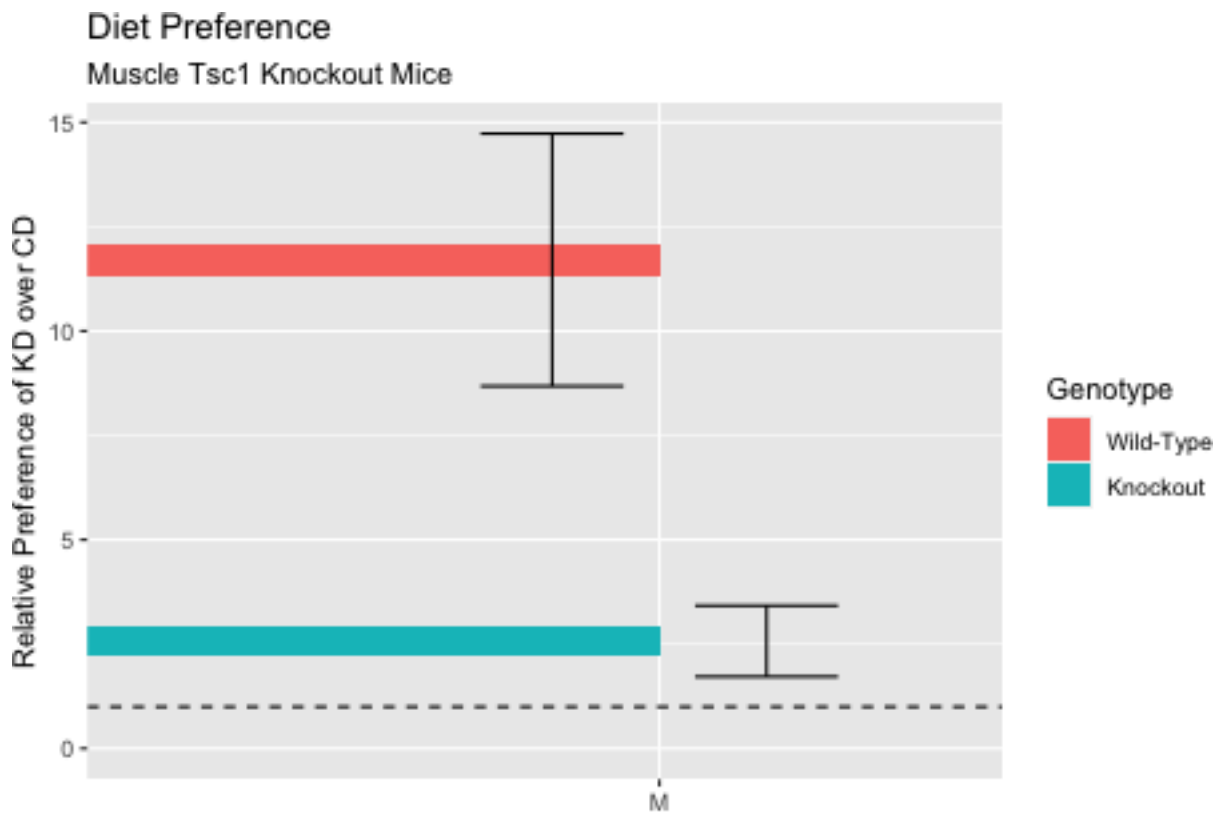
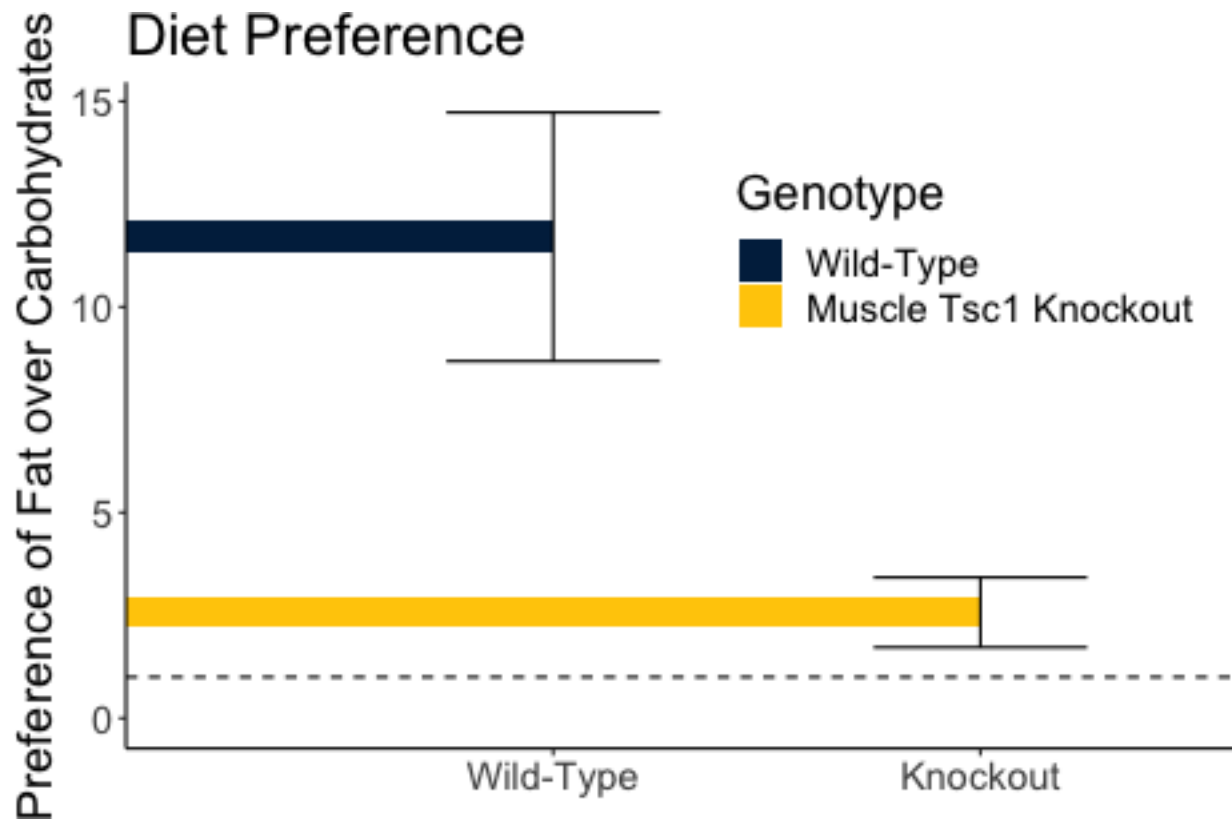


Figure 1: Effects of genotype on macronutrient preference

1.3 Barplots





2 Interpretation

There is a preference towards ketogenic diet over its control diet.

3 Session Information

```
sessionInfo()
```

```
## R version 3.6.3 (2020-02-29)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS Catalina 10.15.3
##
## Matrix products: default
## BLAS:   /Library/Frameworks/R.framework/Versions/3.6/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.6/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] forcats_0.5.0      ggplot2_3.3.0.9000 broom_0.5.5      readr_1.3.1
```

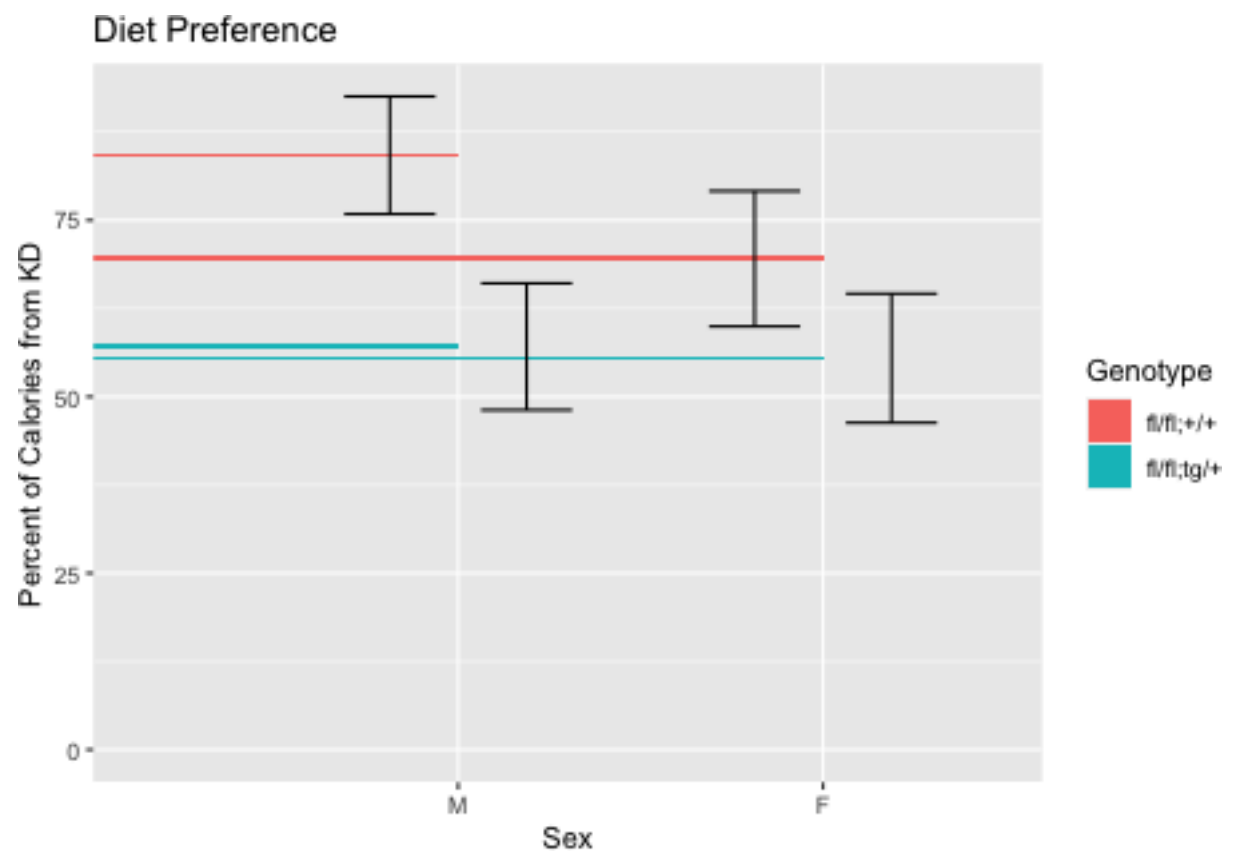


Figure 2: Effects of genotype on macronutrient percent of calories from KD

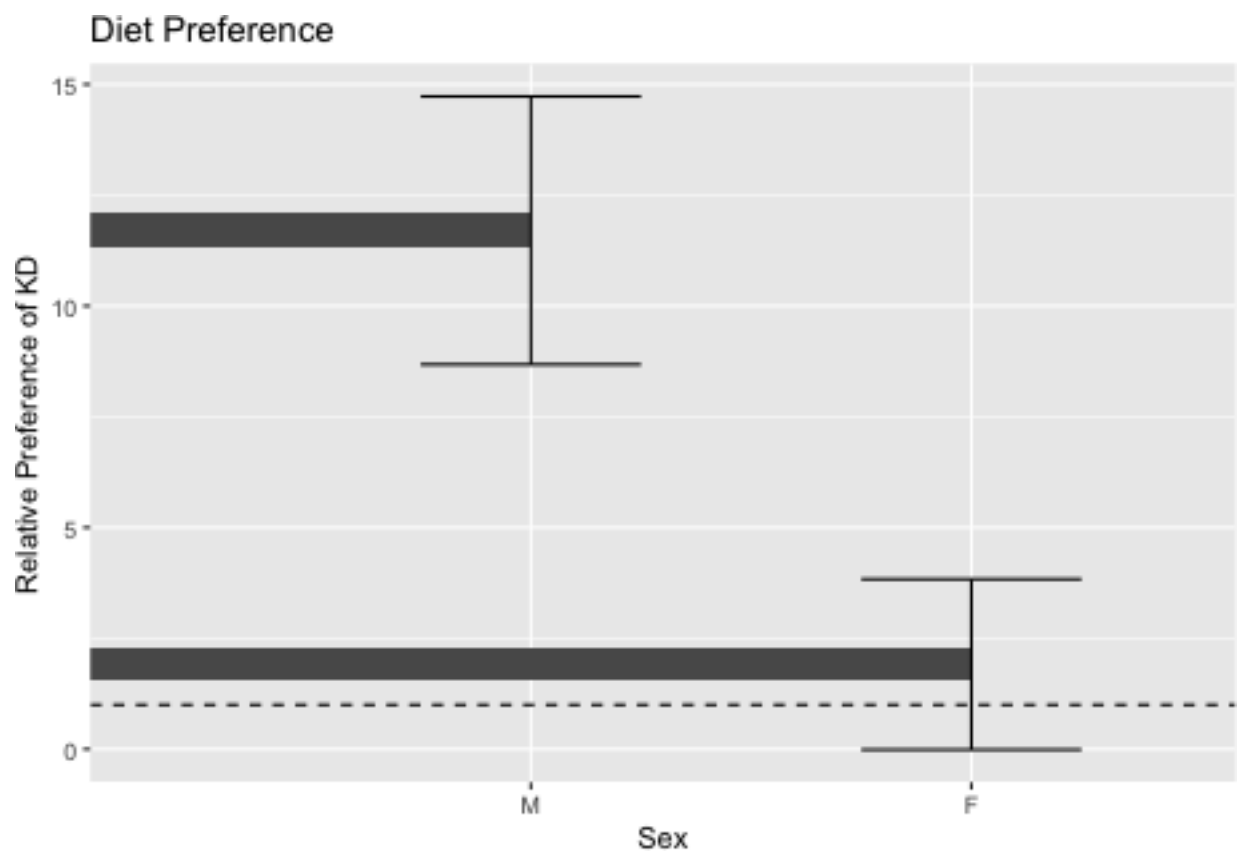


Figure 3: Effects of sex on macronutrient preference

```
## [5] dplyr_0.8.5      tidyr_1.0.2      knitr_1.28
##
## loaded via a namespace (and not attached):
## [1] Rcpp_1.0.4      pillar_1.4.3     compiler_3.6.3   highr_0.8
## [5] tools_3.6.3     digest_0.6.25    evaluate_0.14    lifecycle_0.2.0
## [9] tibble_2.1.3    nlme_3.1-144     gtable_0.3.0     lattice_0.20-38
## [13] pkgconfig_2.0.3 rlang_0.4.5      magick_2.3       yaml_2.2.1
## [17] xfun_0.12       withr_2.1.2      stringr_1.4.0    generics_0.0.2
## [21] vctrs_0.2.4     hms_0.5.3        grid_3.6.3       tidyselect_1.0.0
## [25] glue_1.3.2      R6_2.4.1         rmarkdown_2.1    farver_2.0.3
## [29] purrr_0.3.3     magrittr_1.5     backports_1.1.5  scales_1.1.0
## [33] htmltools_0.4.0 assertthat_0.2.1 colorspace_1.4-1 labeling_0.3
## [37] stringi_1.4.6   munsell_0.5.0    crayon_1.3.4
```