

# Insulin Clamp Study on Mck-TSC1 Mice

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## 1 Experiment Summary

	Genotype	X.	ID	Basal.Glucose	Clamp.Glucose	Clamp.GIR	Clamp.AUC	Basal.SA	Clamp.SA	B
8	Knockout	8	245	88	113	38.3	4303	166204	158722	
11	Knockout	1	266	107	125	40.4	4206	144050	157520	
12	Knockout	2	267	139	114	14.5	1760	95930	120125	
13	Knockout	3	323	139	112	15.8	1938	282602	261183	
14	Knockout	4	371	117	138	31.2	3515	360233	286396	
15	Knockout	5	197	89	117	31.0	3235	163434	212528	
16	Knockout	6	184	110	112	25.3	2594	164238	200053	
17	Knockout	7	230	98	124	28.3	2967	164504	159853	
1	Wild-Type	1	370	137	135	21.1	2336	176774	166972	
2	Wild-Type	2	186	130	115	16.4	1857	127462	164844	
3	Wild-Type	3	269	126	118	25.4	2651	156866	139891	
4	Wild-Type	4	268	138	134	22.7	2640	90144	106372	
5	Wild-Type	5	377	145	143	23.3	2468	84227	108108	
6	Wild-Type	6	378	152	120	25.2	2535	107524	112819	
7	Wild-Type	7	381/wh	111	118	31.0	3294	127835	149024	
9	Wild-Type	9	381/br	103	110	32.6	3461	112970	139744	
10	Wild-Type	10	262	129	120	20.7	2457	151048	184565	

## 1.1 Data Summary

The mean data is compiled with the standard errors

## 1.2 Statistics

Table 2: Summary statistics for each measurement

WT	KO	Measurement	Difference	Pct.Difference
110.88	130.11	Basal.Glucose_mean	19.236	17.349
119.48	123.67	Clamp.Glucose_mean	4.188	3.505
28.10	24.26	Clamp.GIR_mean	-3.848	-13.694
3064.68	2633.34	Clamp.AUC_mean	-431.333	-14.074
192649.32	126094.59	Basal.SA_mean	-66554.729	-34.547
194547.40	141370.92	Clamp.SA_mean	-53176.476	-27.333
28.61	29.54	Basal.Gtr_mean	0.930	3.251
53.36	51.55	Clamp.Gtr_mean	-1.803	-3.378
28.61	29.54	Basal.HGP_mean	0.930	3.251
25.25	27.29	Clamp.HGP_mean	2.034	8.053
16.95	7.37	Clamp.sHGP_mean	-9.586	-56.542
16.49	16.35	Clearance.Basal_mean	-0.133	-0.805
33.34	27.32	Clearance.Clamp_mean	-6.029	-18.081
3.41	11.22	Insulin.Basal_mean	7.813	229.270
14.78	21.29	Insulin.Clamp_mean	6.513	44.078
13.08	13.03	Gastroc_mean	-0.051	-0.392
6.60	2.69	V.fat_mean	-3.912	-59.296
21.75	6.52	S.fat_mean	-15.228	-70.010
194.63	250.50	BAT_mean	55.867	28.704
341.70	445.18	Heart_mean	103.473	30.282

Table 3: T-Tests, Unadjusted

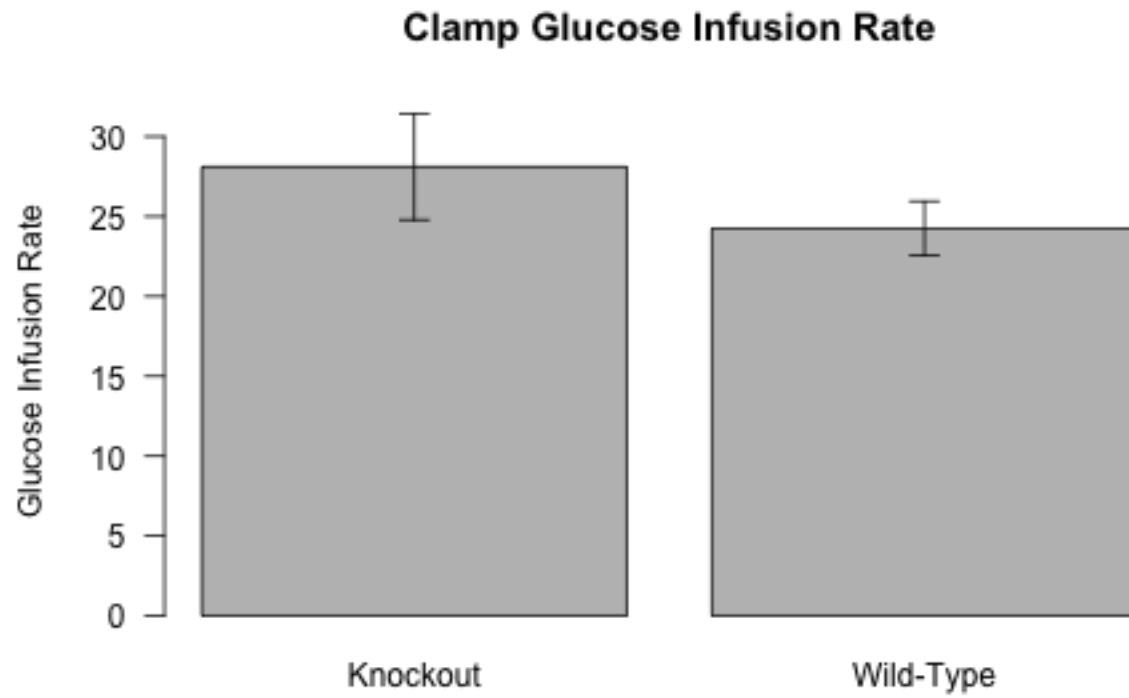
Clamp.GIR	Clamp.AUC	Basal.HGP	Clamp.HGP	sHGP	Clearance.Basal	Clearance.Clamp	Insulin	Gastroc
0.325	0.272	0.852	0.792	0.477	0.953	0.269	0.008	0.984

Table 4: Nominal and Benjamini-Hochberg Adjusted T-Tests

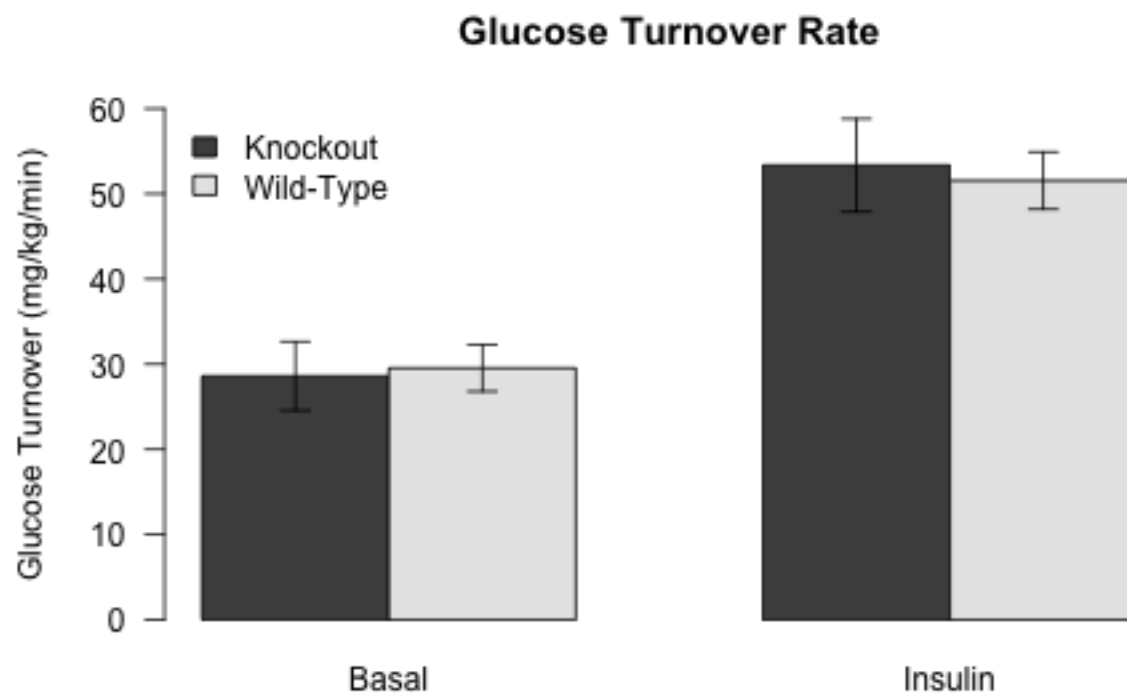
Clamp.GIR	Clamp.AUC	Basal.HGP	Clamp.HGP	sHGP	Clearance.Basal	Clearance.Clamp	Insulin	Gastroc
0.325	0.272	0.852	0.792	0.477	0.953	0.269	0.008	0.984
1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.090	1.000

## 2 Graphs

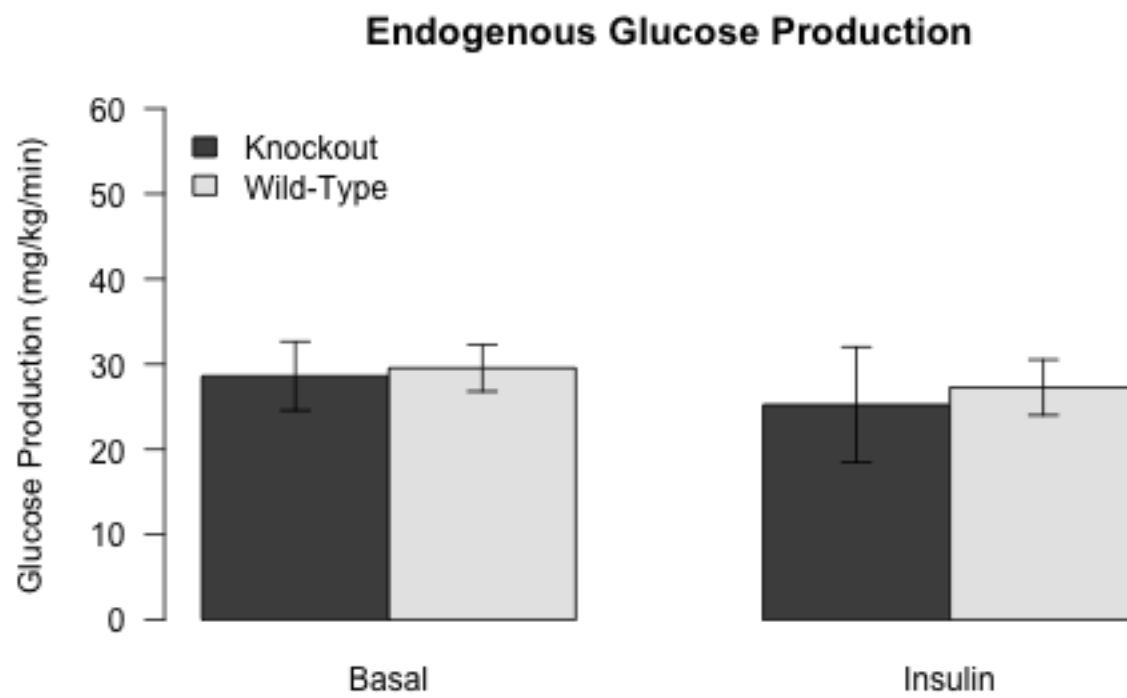
### 2.1 Glucose Infusion Rate



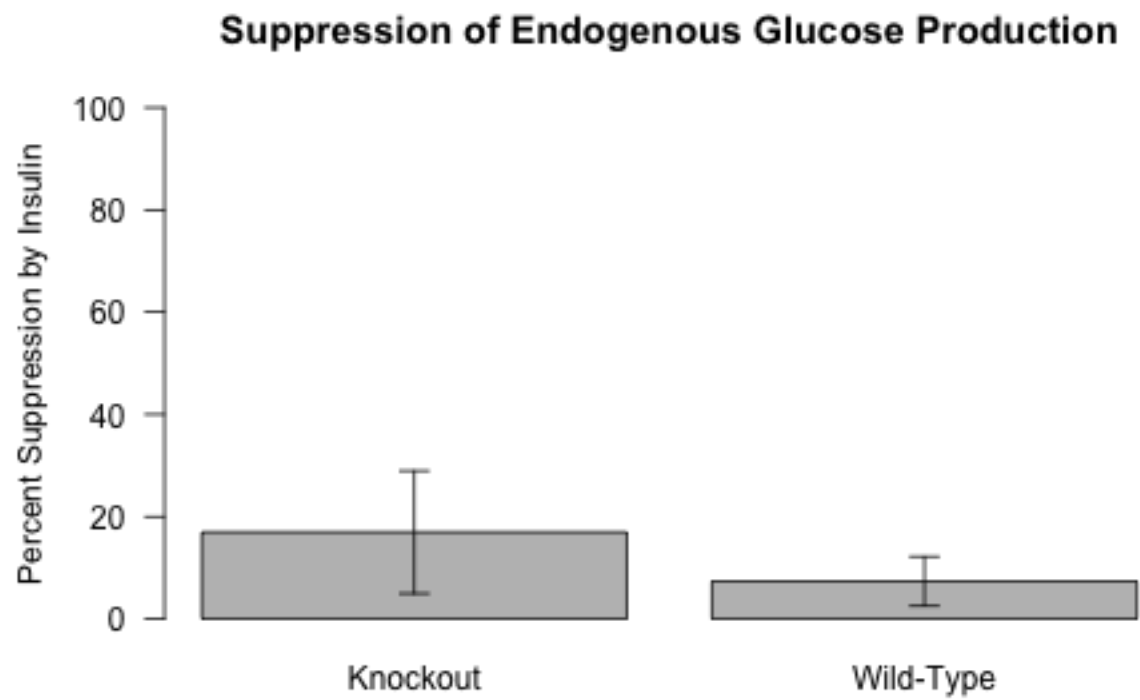
## 2.2 Glucose Turnover



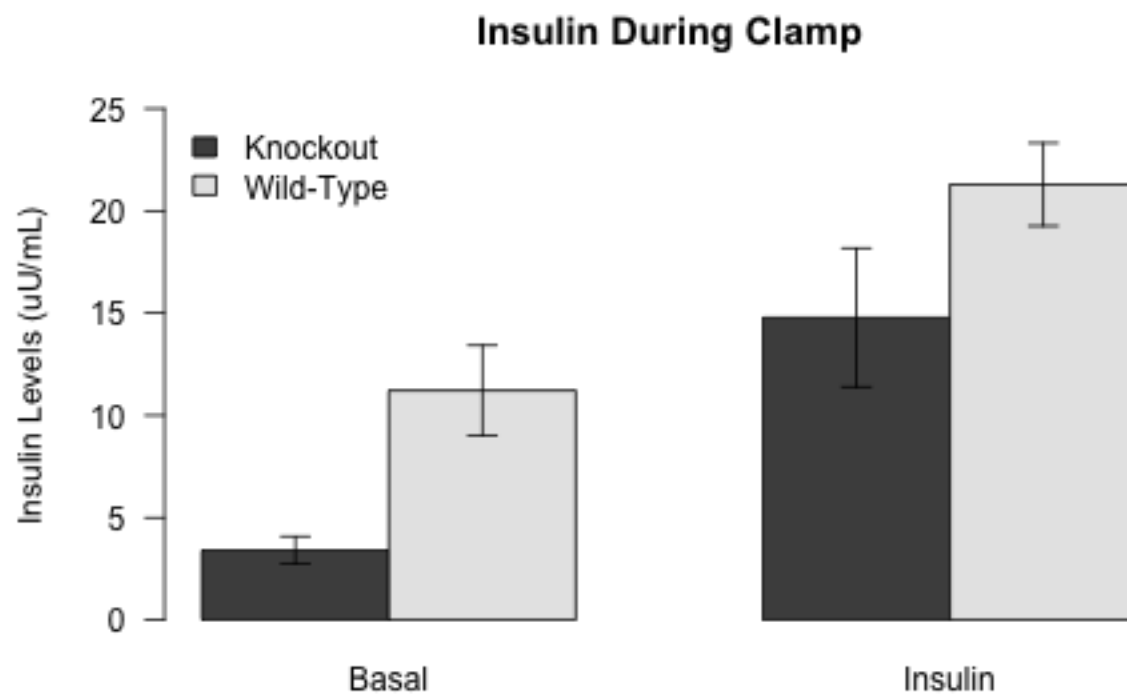
## 2.3 Endogenous Glucose Production



### 2.3.1 Suppression of Endogenous Glucose Production

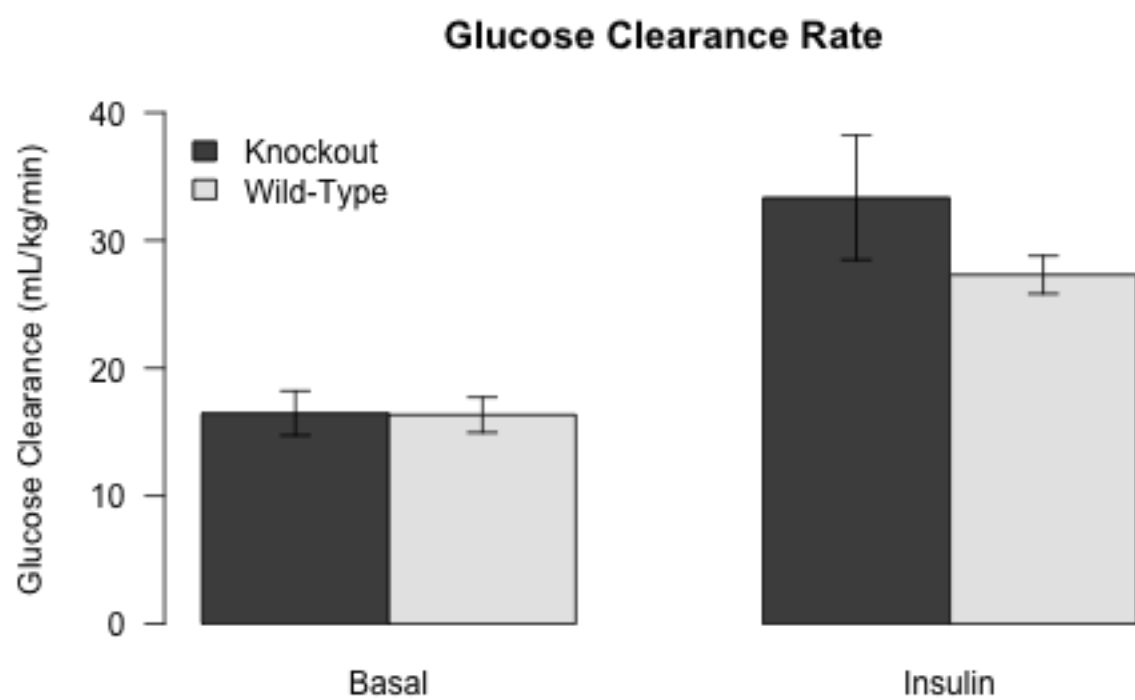


## 2.4 Insulin Levels



## 3 Glucose Clearance Rate

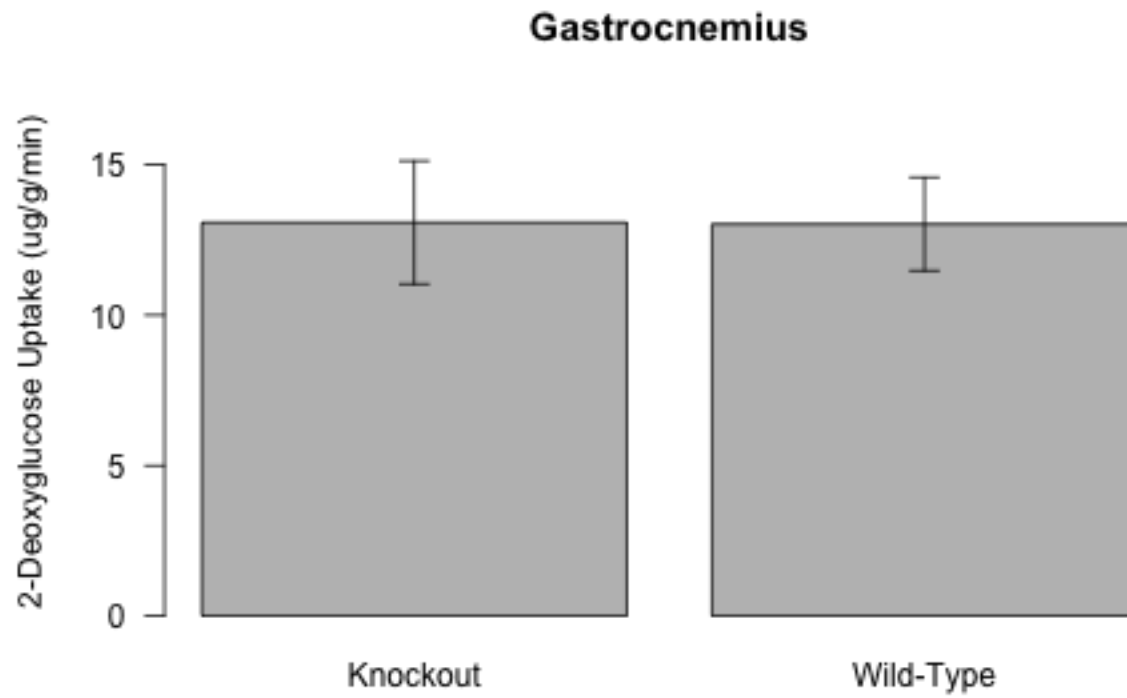
Blood glucose clearance



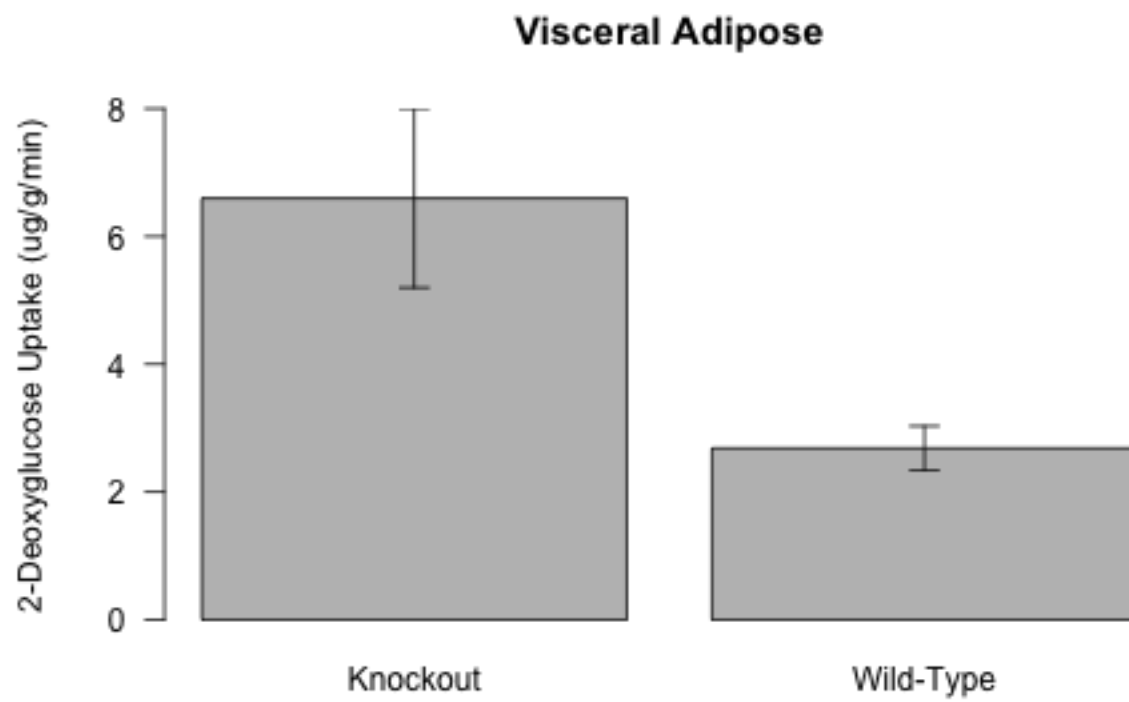


## 4 Tissue Glucose Clearance

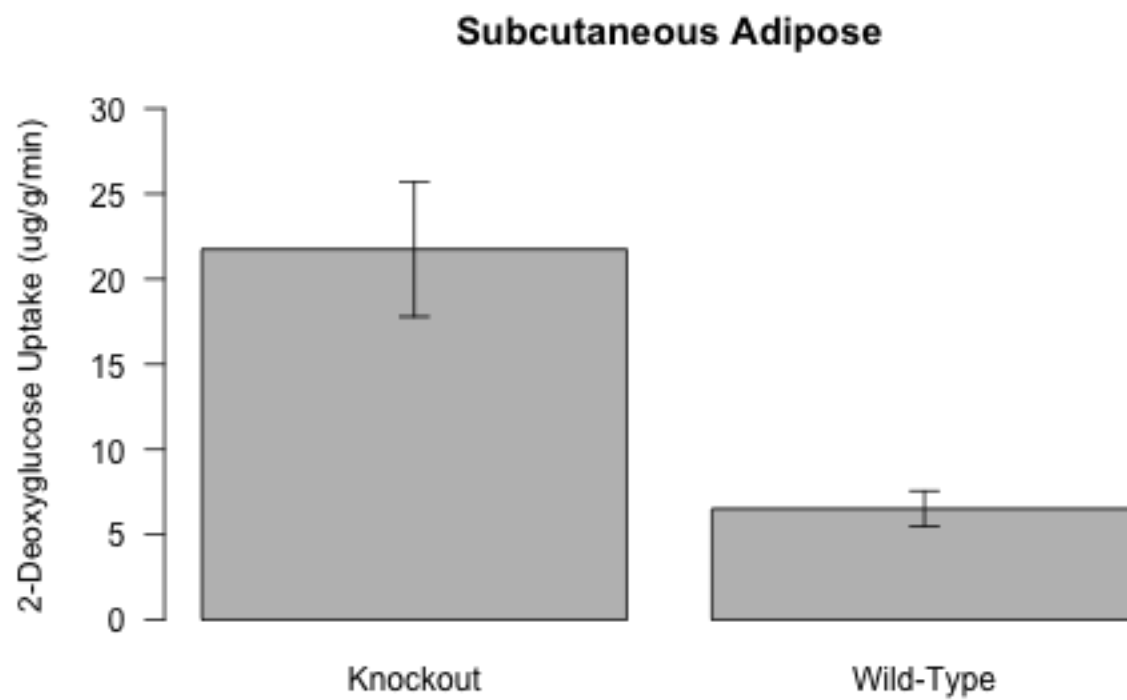
### 4.1 Gastrocnemius Glucose Uptake During Clamp



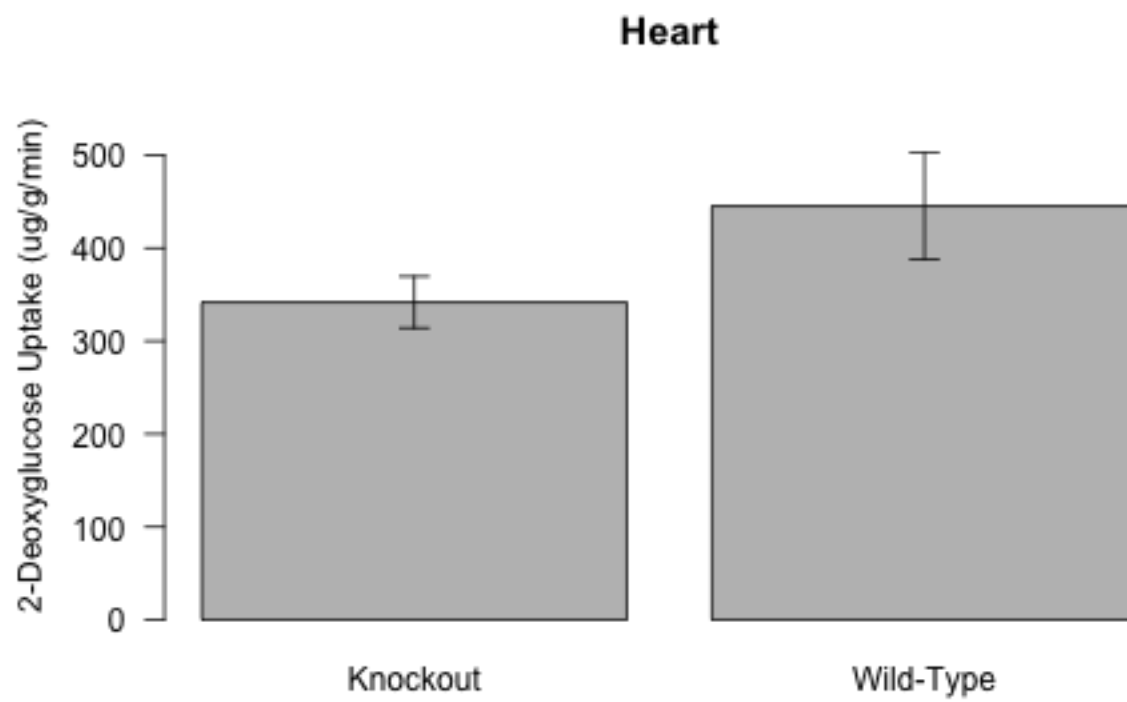
## 4.2 Visceral Fat Glucose Uptake During Clamp



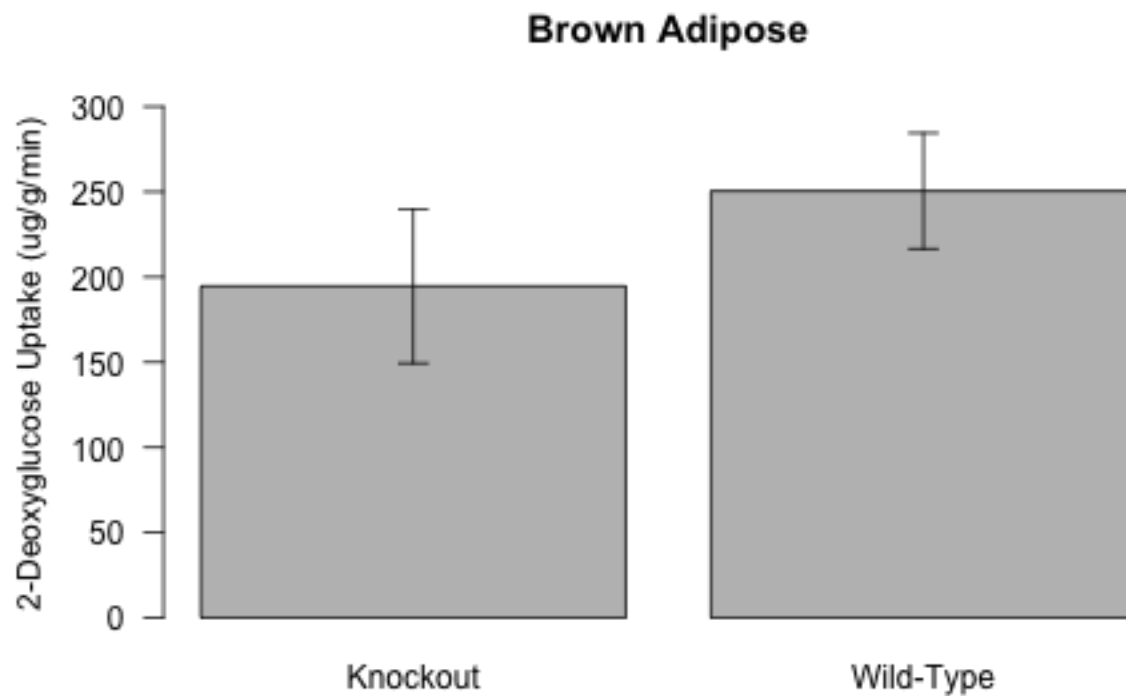
### 4.3 Subcutaneous Fat Glucose Uptake During Clamp



#### 4.4 Heart Glucose Uptake During Clamp



## 4.5 Brown Adipose Tissue Glucose Uptake During Clamp



## 5 Session Information

```
sessionInfo()
```

```
## R version 3.5.0 (2018-04-23)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS 10.14.5
##
## 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] tibble_2.1.3 plyr_1.8.4   dplyr_0.8.1 tidyr_0.8.3 knitr_1.23
##
## loaded via a namespace (and not attached):
```

```
## [1] Rcpp_1.0.1      assertthat_0.2.1 crayon_1.3.4    digest_0.6.19
## [5] R6_2.4.0        magrittr_1.5     evaluate_0.14    highr_0.8
## [9] pillar_1.4.1    rlang_0.3.4      stringi_1.4.3    rmarkdown_1.13
## [13] tools_3.5.0     stringr_1.4.0    glue_1.3.1       purrr_0.3.2
## [17] xfun_0.7        yaml_2.2.0       compiler_3.5.0   pkgconfig_2.0.2
## [21] htmltools_0.3.6 tidyselect_0.2.5
```