Energy Expenditure Working Group

Fall 2013

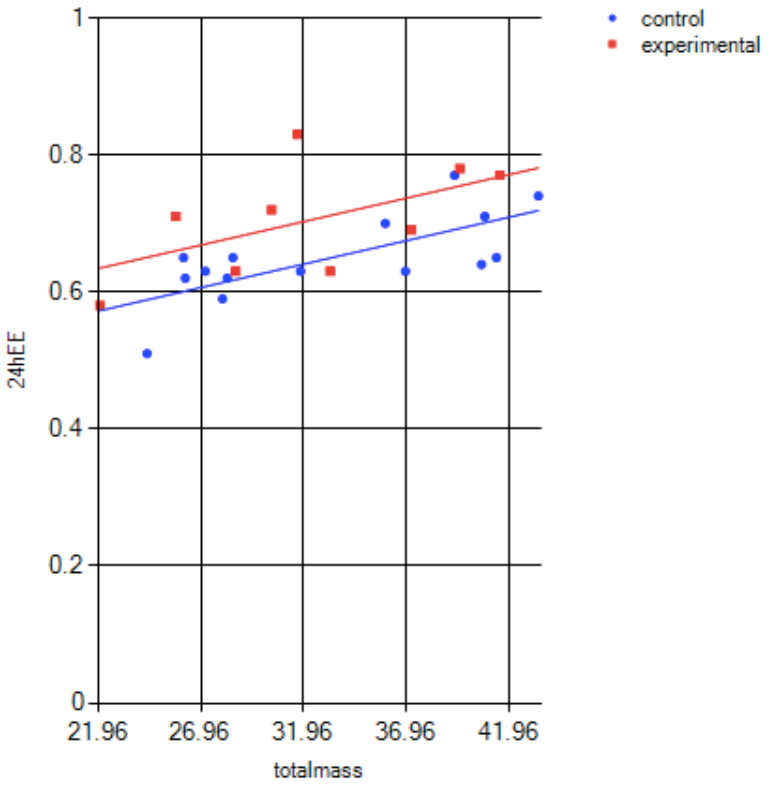
Outline

- Statistical Analysis
- Comparison Across Centers and platforms
  - Phase 1
  - Phase 2
- Discussion

Statistical Analysis

- **ANCOVA**
  - **Web Portal (Done!! For one covariate)**
  - **Vignettes to use portal (nearly ready)**
  - **User friendly annotation**

Example (no interaction)



Example (no interaction)

Program= MMPC Multiple Linear Regression Output					
Datafile=EE_mass_dataset1.csv					
Response Variable=24hEE					
Covariate=totalmass					
Grouping Variable=group					
The interaction totalmass:group is NOT significant. (p=0.8411)					
24 total cases. control = 15, experimental = 9					
R Squared = 49.7074		Adjusted R Square = 44.9176			
Residual Standard Error 0.0547 with 21 degrees of freedom					
Source	Sum of Squares	df	MeanSquare	F-ratio	P value
Regression	0.0620348	2	0.0310174	10.3778	0.000734168
Residual	0.0627652	21	0.00298882		

Example (no interaction)

Variables	Estimate	StdError	P Value
(Intercept)	0.42146	0.0604312	6.90362E-07
totalmass	0.00685637	0.00176798	0.000869213
group	0.0620802	0.0231209	0.0138621

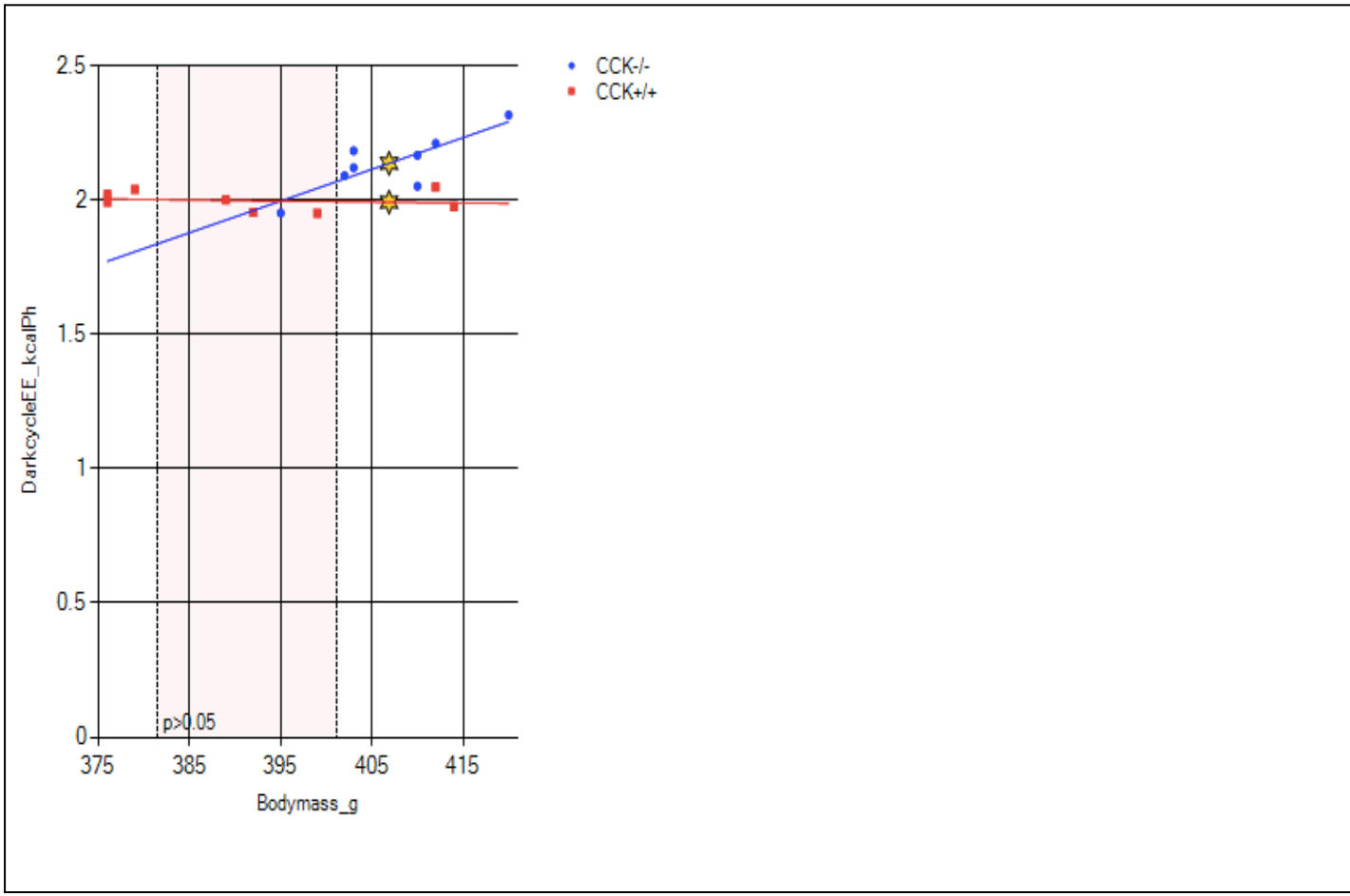
Basic Statistics - Avg (StDev)

Groups	control	experimental
24hEE	0.65 (0.06)	0.7 (0.077)
totalmass	33.24 (6.476)	32.22 (6.028)

Model-based Statistics - Avg 24hEE (StErr)

	Groups		
Used: totalmass	control	experimental	P value
Overall Mean	0.65 (0.014)	0.71 (0.018)	0.01386
Group Mean	0.65 (0.014)	0.7 (0.018)	0.02625
Residual Variance	0.00212	0.00501	

Interaction



Phase 1

- **Comparison between platforms**
  - **TSE (Pennington)**
  - **Promethion (Vanderbilt)**
  - **CLAMS (Yale)**
  - **Analysis (Rob Podolsky)**
    - Low fat diet
    - EE assessed at 2 10 and 20 weeks
    - Phase Study completed with analysis March/April 2014

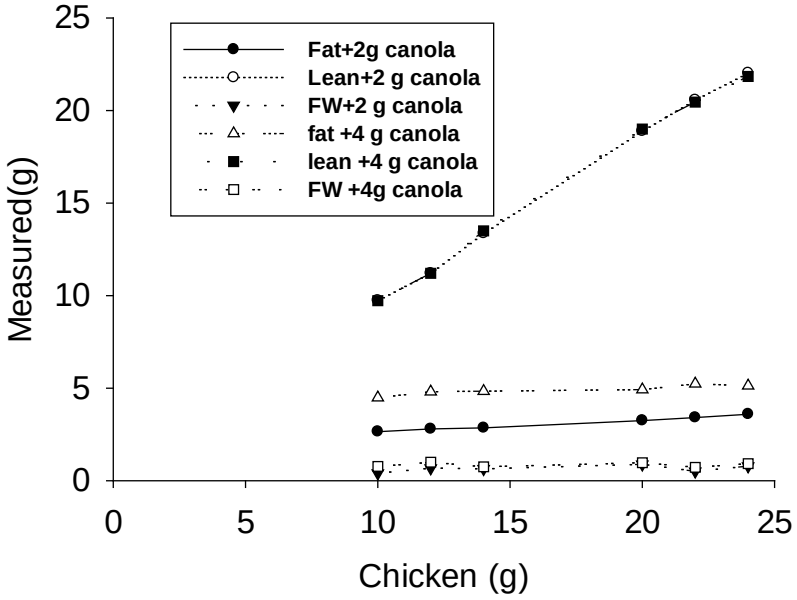
Phase 2

- **All Centers**
  - **Low and high fat diet**
- **Start Spring 2014**

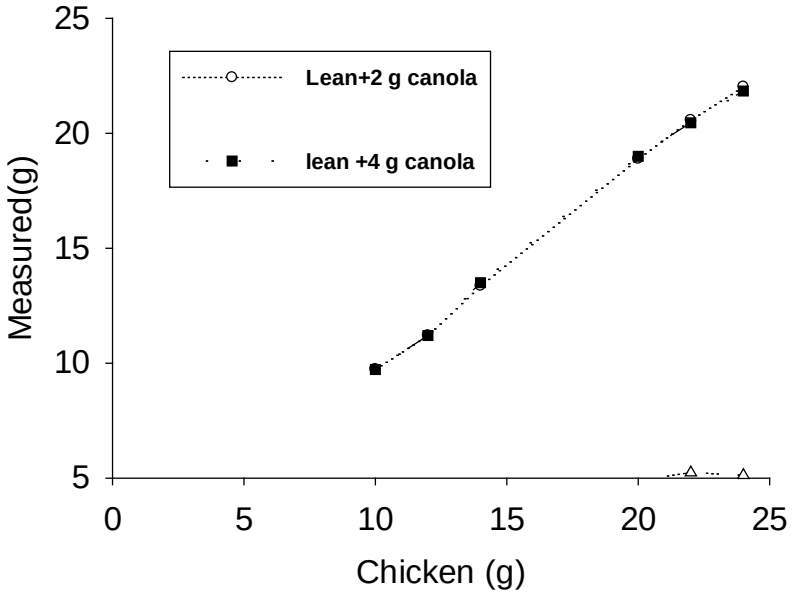
Challenges

- Coordination of orders
- Body composition (calibration)

Impact of adiposity on estimates Lean Mass



Expanded scale of left slide



Conclusion

- **The relationship between adiposity and canola mass is linear (slope=0.95) and line intersects near zero**
- **The relationship between lean mass and lean chicken is linear (slope=0.92) and line intersects above zero (0.25) (may be an issue for small mice)**
- **Lean chicken has some fat tissue in it (7.8% adiposity) (may explain why slope for lean body mass is not =1)**
- **Varying adiposity (add canola oil) does not alter the measurement of lean body mass**

Questions/Discussion