

# Influence of Chronic Exposure to High-Frequency Electromagnetic Fields on Fertility and Development in vivo (Project 8)

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# Background

- So far, only limited data are available with respect to long-term effects of exposure to electromagnetic fields on laboratory animals.
- Especially, fertility and developmental effects need to be investigated over extended periods of time (multiple generations).

# Experimental Design

- SAR values: 0 (sham), 0.08, 0.4, and 1.3 W kg<sup>-1</sup>
- Blinded design
- n = 32 pairs of mice (C57Bl; 1 male + 2 females) per generation and SAR value
- 4 generations (F0 – F3)
- Exposure 24 hrs / day, life long exposure

# Experimental Design

- F0 generation exposed (1 male + 2 females)
- From the offspring of these animals, the F1 animals were recruited.
- From the offspring of these animals, the F2 animals were recruited.
- From the offspring of these animals, the F3 animals were recruited.
- The experiment was terminated a few days prior to delivery of the F3 dams.

# Endpoints

- Body weight (regularly)
- Males: sperm count, malformed sperm
- Females: litter size, uteri weights, corpora lutea, implantation sites, resorptions
- Pups: body weight, time point of eye opening, reflex tests, survival rates

# Exposure Units

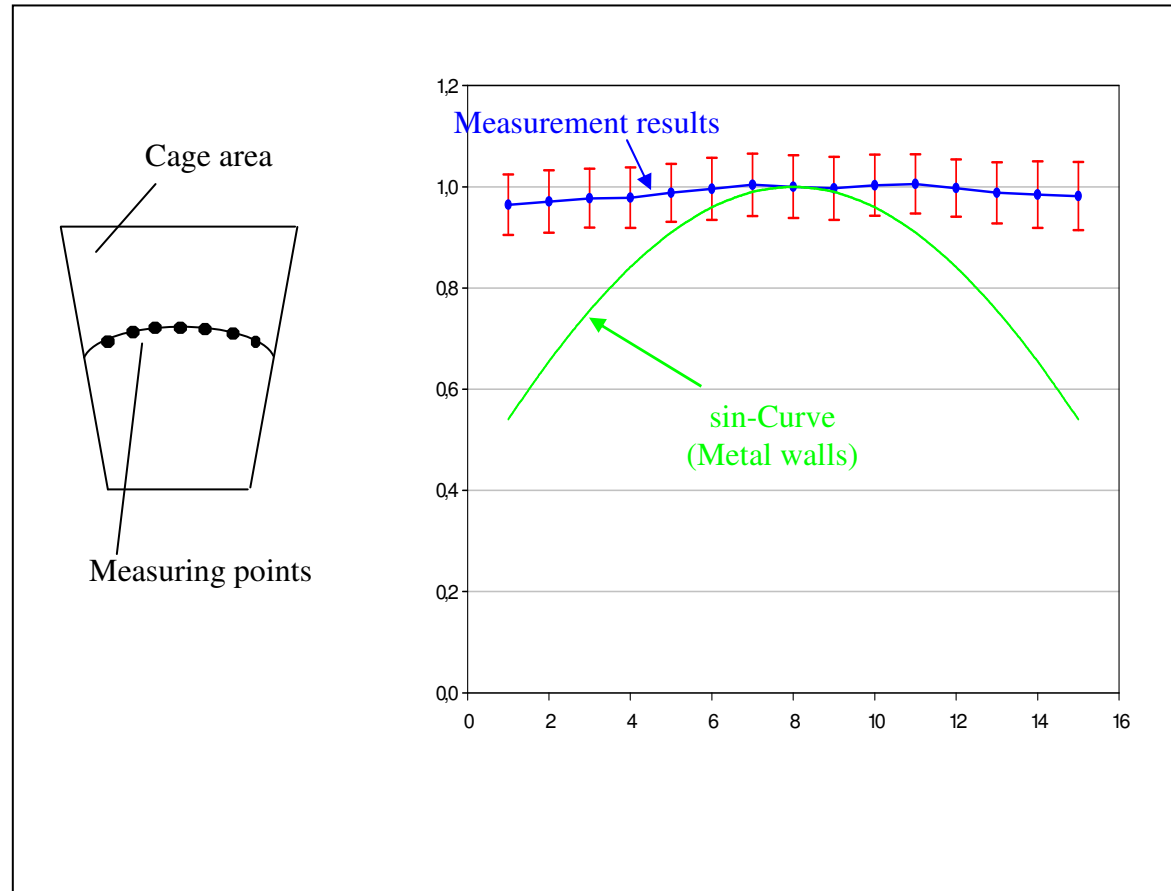


4 identical units with 32  
(2 x 16) cages

# Exposure Units



# Homogeneous Exposure



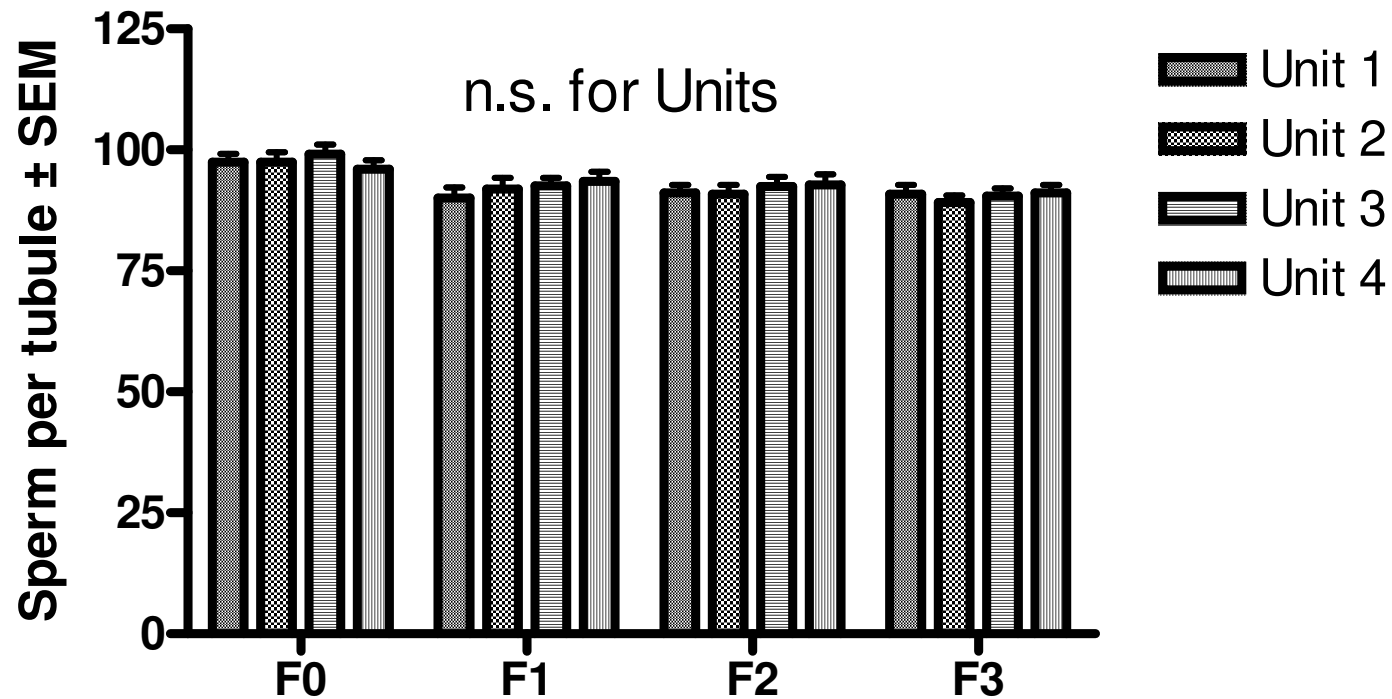


# Results: Wrong Strain?

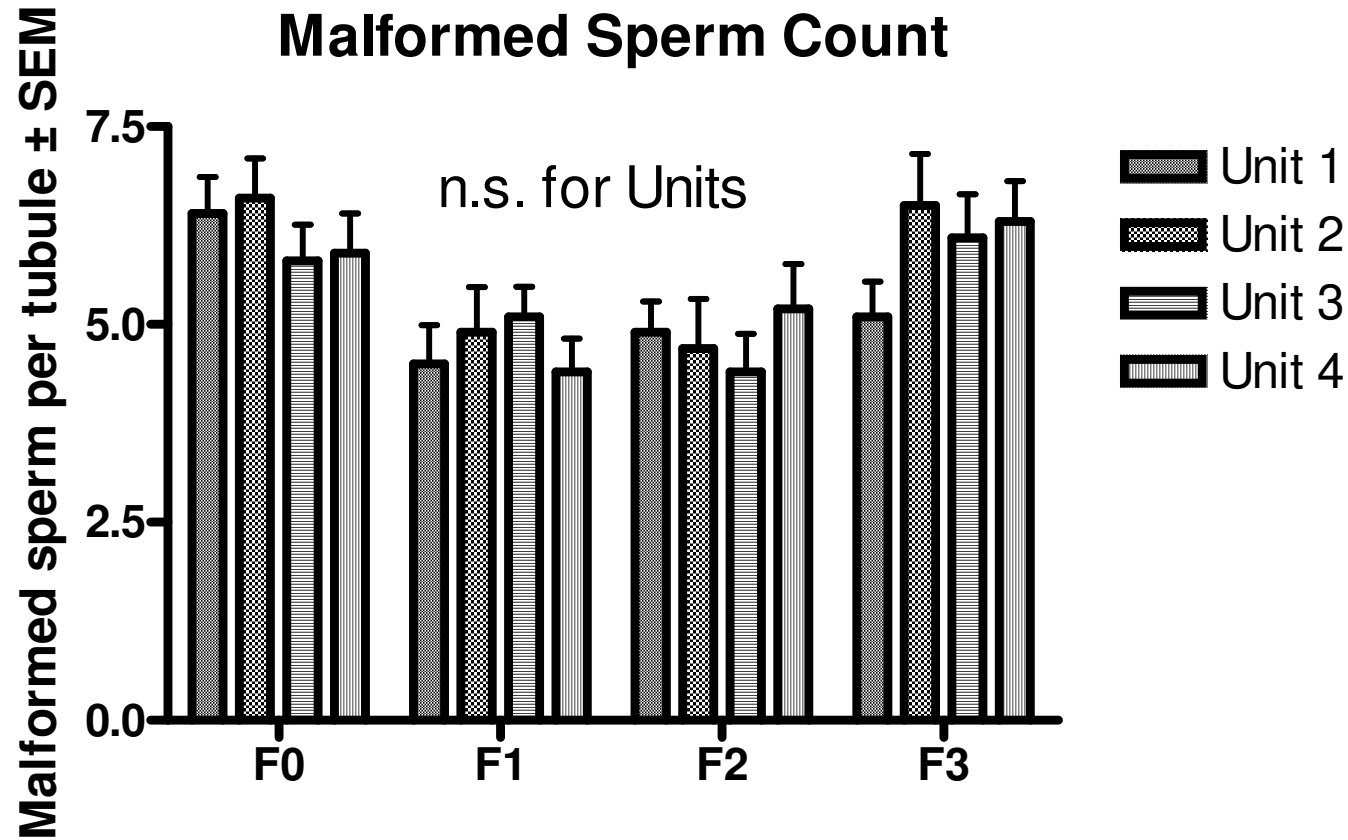
- During the course of the experiment it turned out that the C57Bl mice have a high number of pups per litter (which is in agreement with statements from the company), but the number of surviving pups is extremely low.
- Therefore, a second pregnancy had to included.

# Results: Testis Morphology

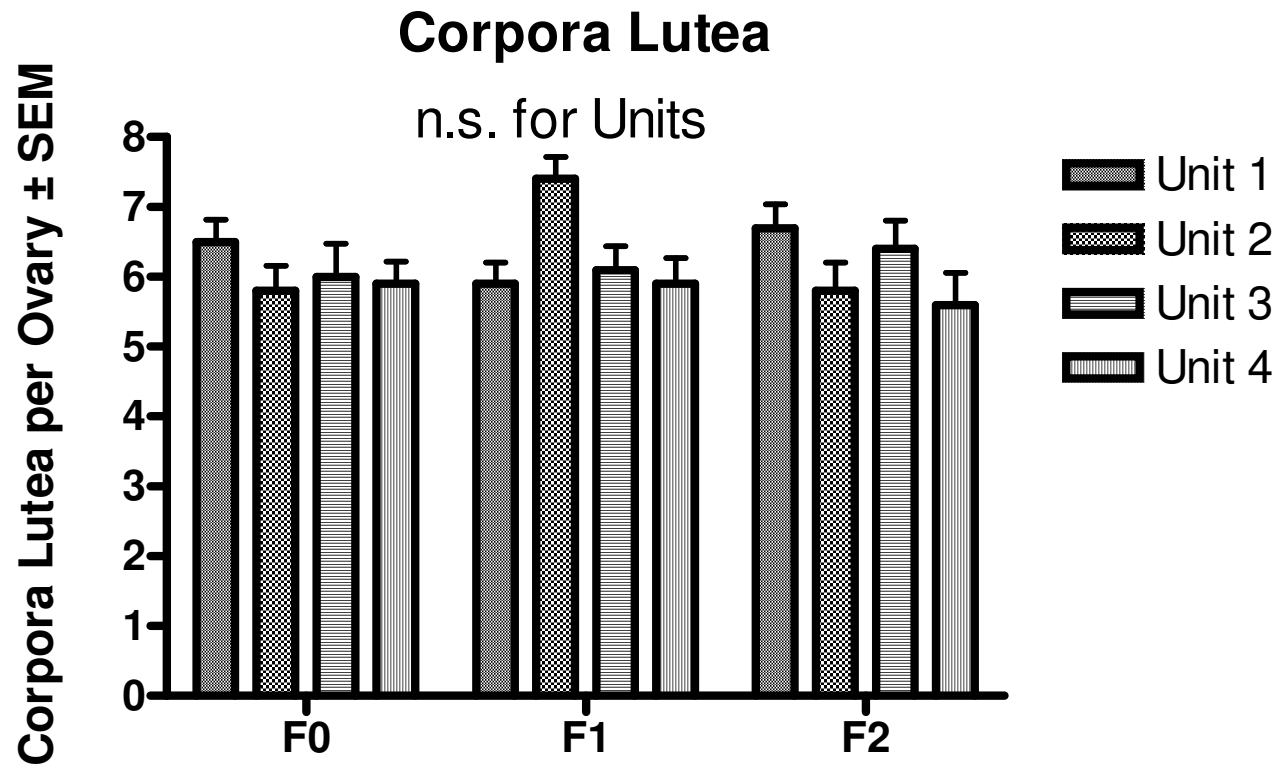
## Sperm Count



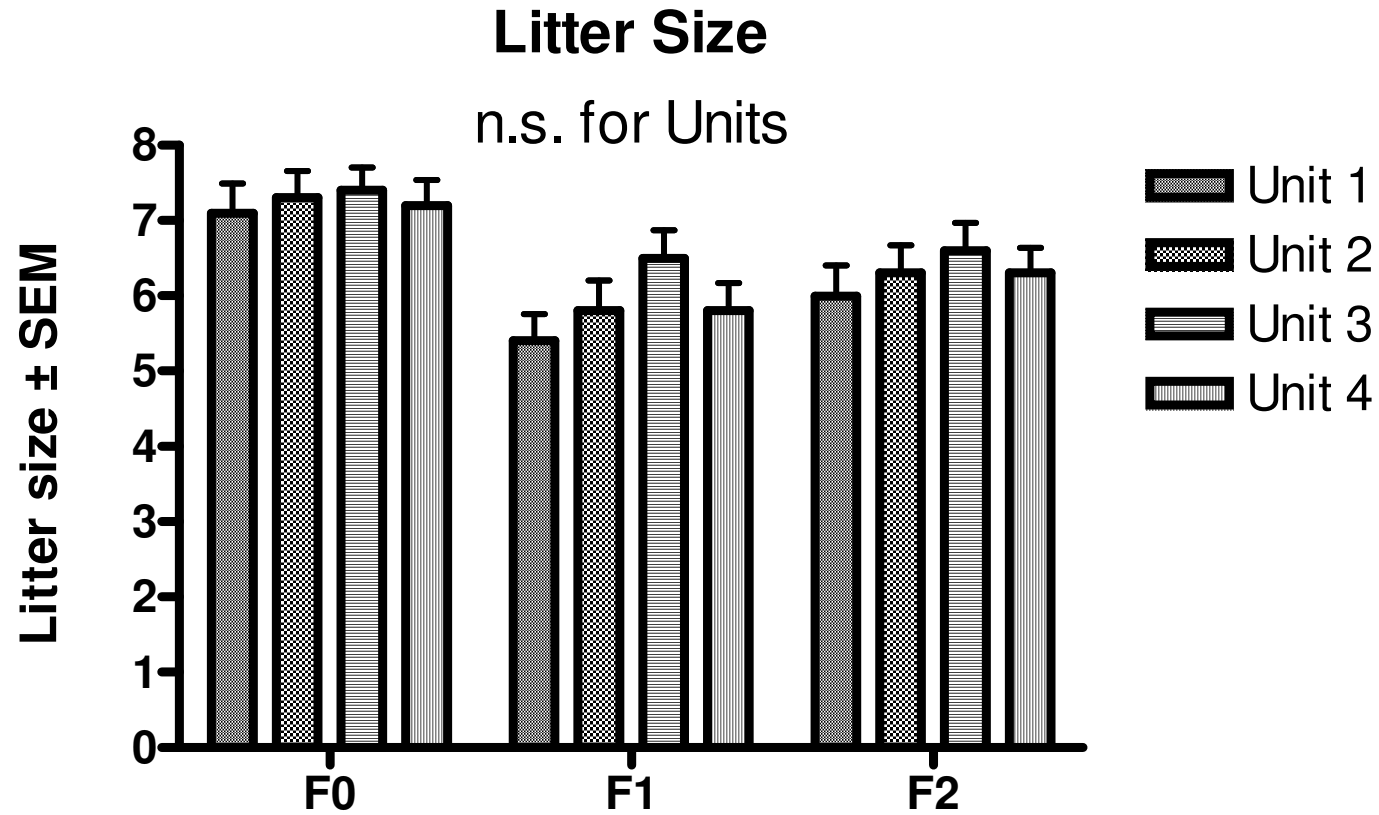
# Results: Testis Morphology



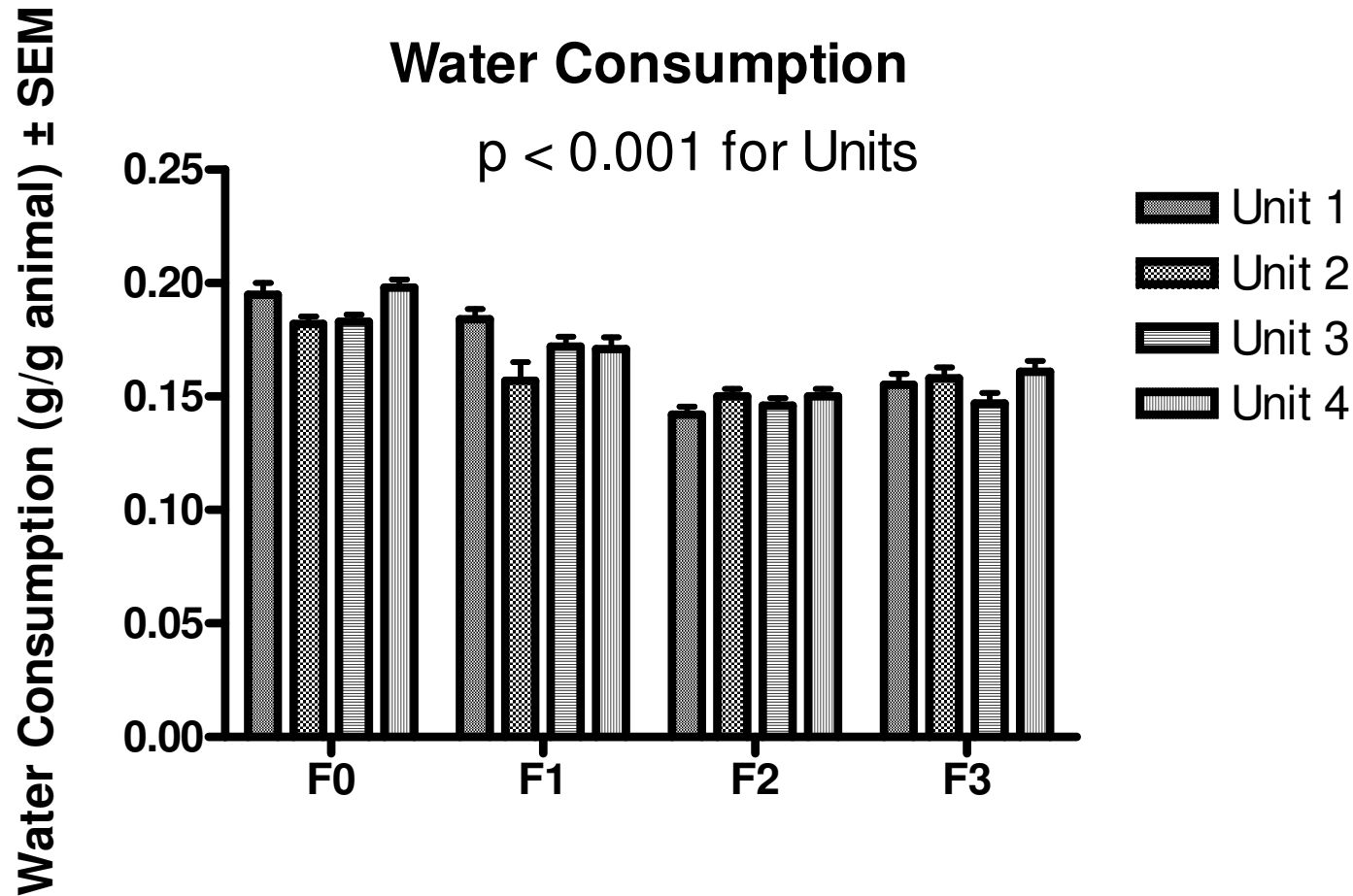
# Results: Corpora Lutea



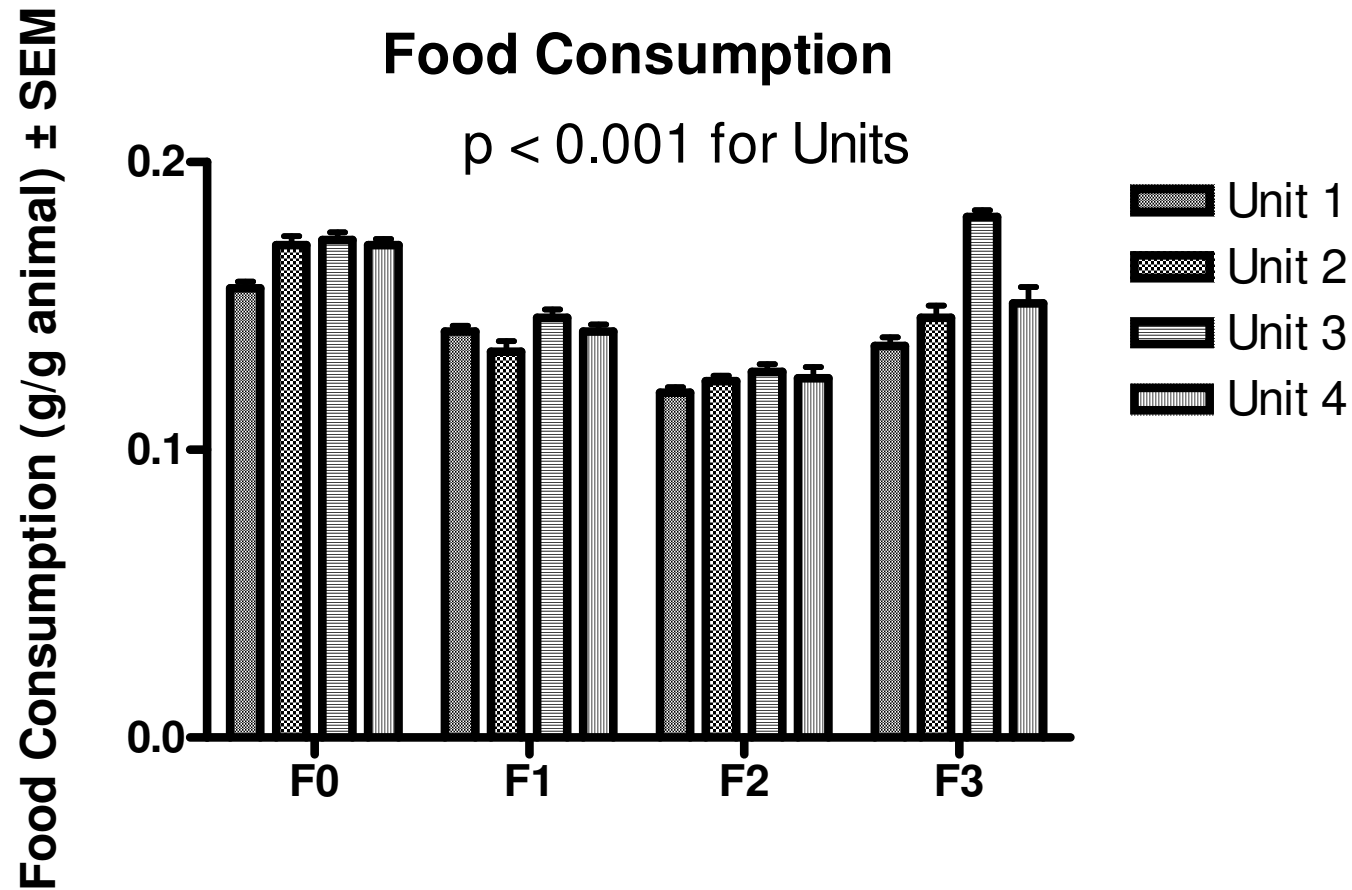
# Results: Litter Size



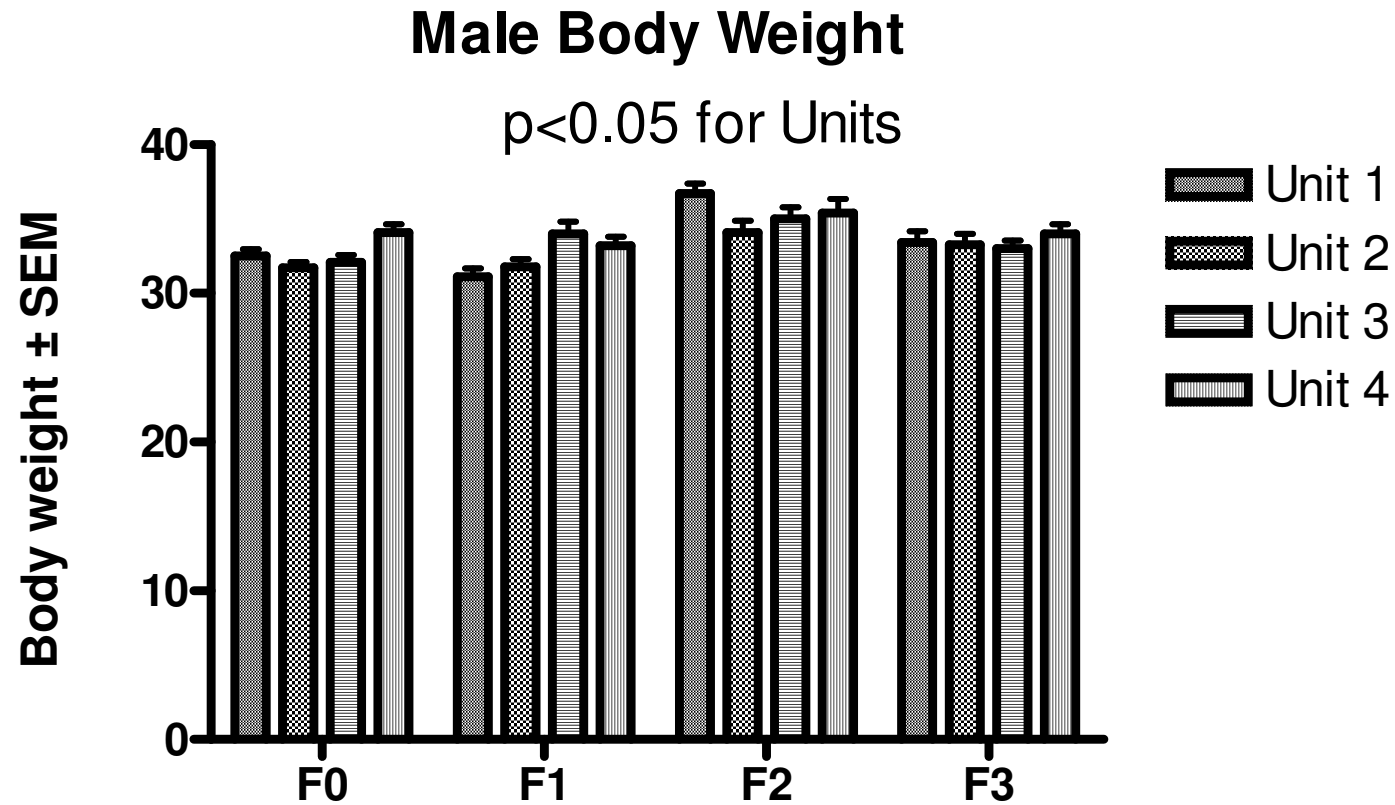
# Results: Water Consumption



# Results: Food Consumption



# Results: Males' Body Weight





# Preliminary Conclusions

- Apparently, there are no consistent or strong effects of UMTS exposure on fertility or fertility-related parameters.
- Effects may exist with respect to food and water consumption and body weight, thus consistent with previous reports.
- Final data analysis will reveal possible dose-response relationships (the code will be broken in a few weeks).

# Acknowledgements

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Questions?