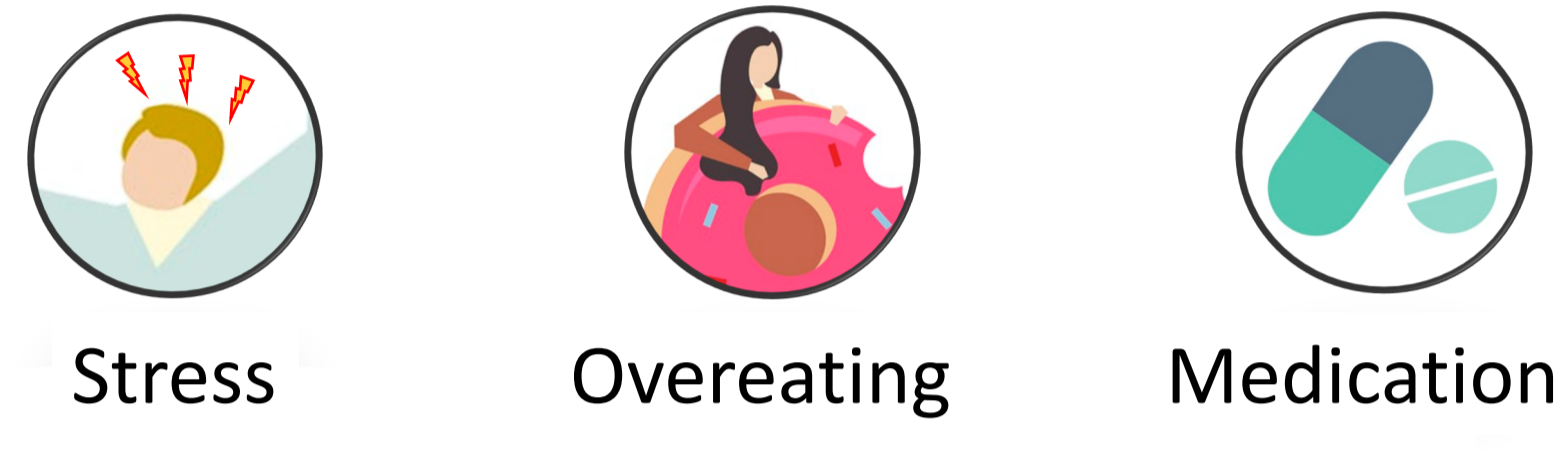


2 WHAT WE KNOW:

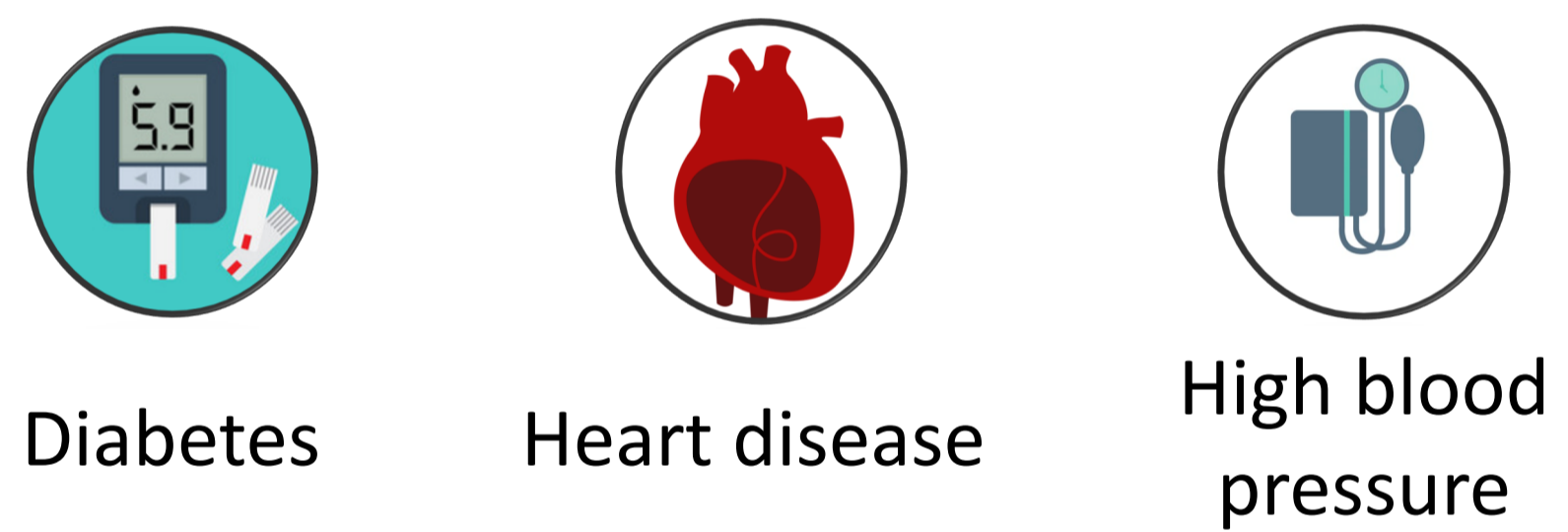


- 64% of the UK population is overweight and 29% of adults are classed as obese¹.
- Men and women respond to obesity differently.
- In the UK men are 2X more likely to have diabetes³.

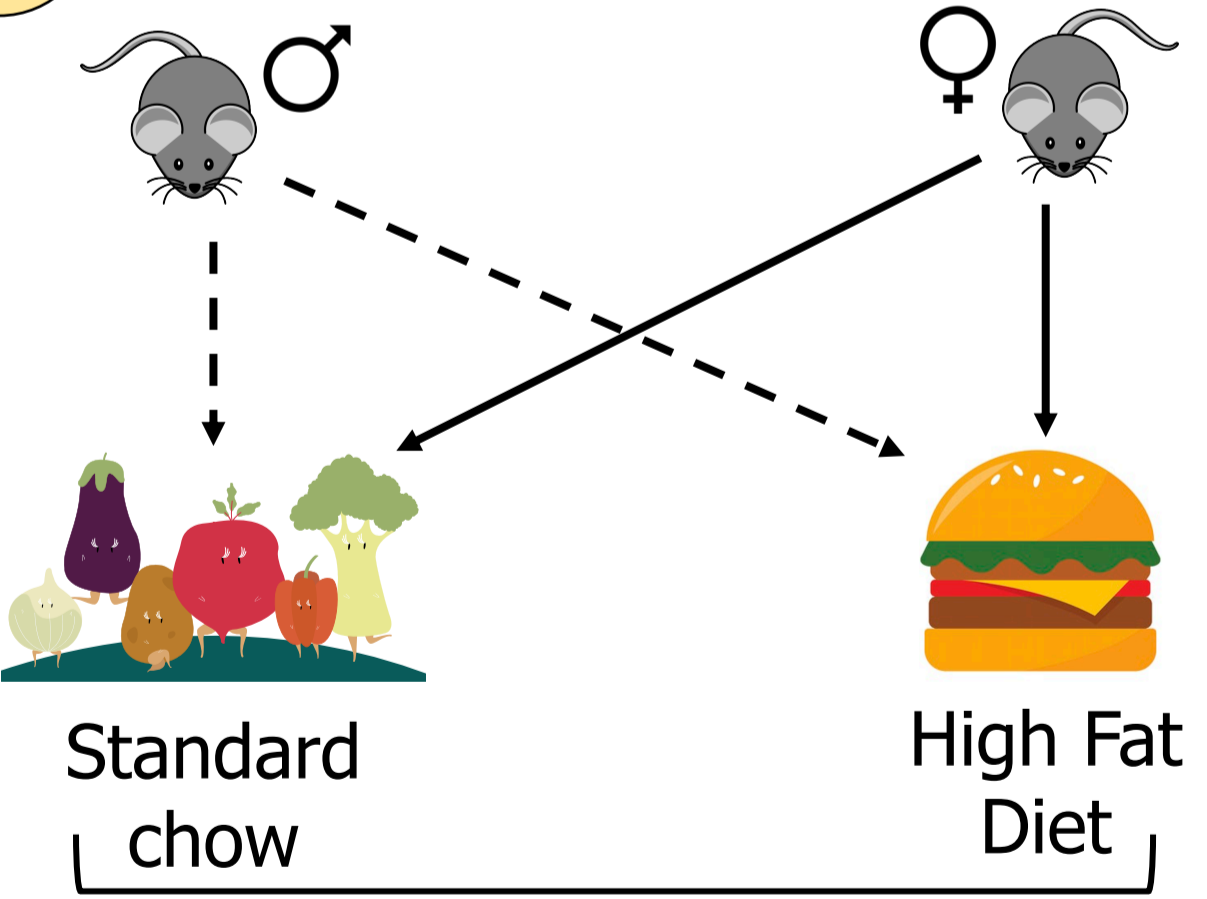
CAUSE OF OBESITY:



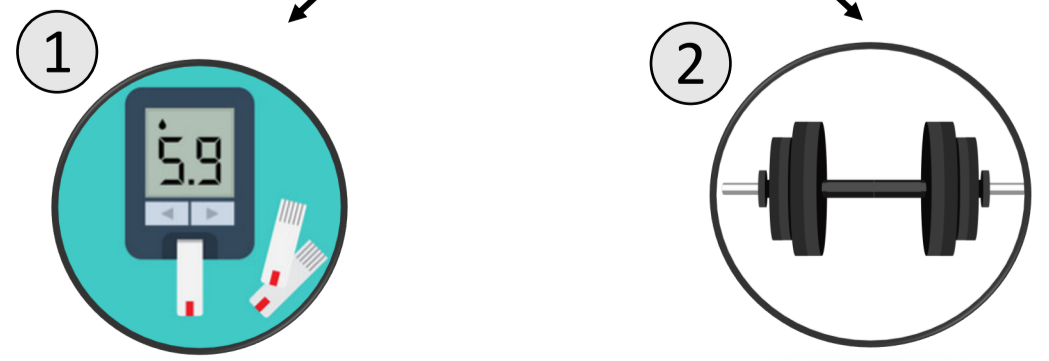
CONSEQUENCE OF OBESITY:



3 WHAT WE DID:



Male AND female mice
Fed standard mouse food OR a High Fat Diet (HFD), like eating fast food every day.



- 1) Measured blood glucose to detect diabetes.
- 2) Measured metabolic differences.

4 WHAT WE LEARNED: Males gain weight faster than females

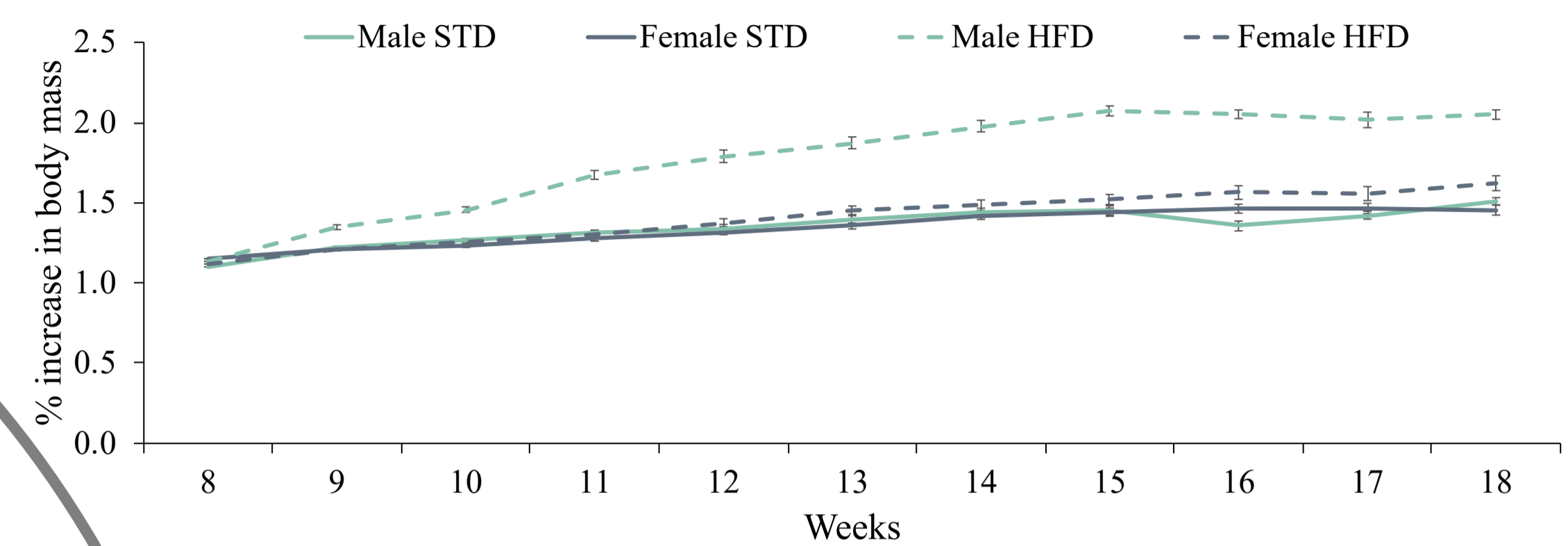


Figure 1. Male mice fed HFD increase their body mass after 1 week and females take 9 weeks.

Males are more susceptible to diabetes

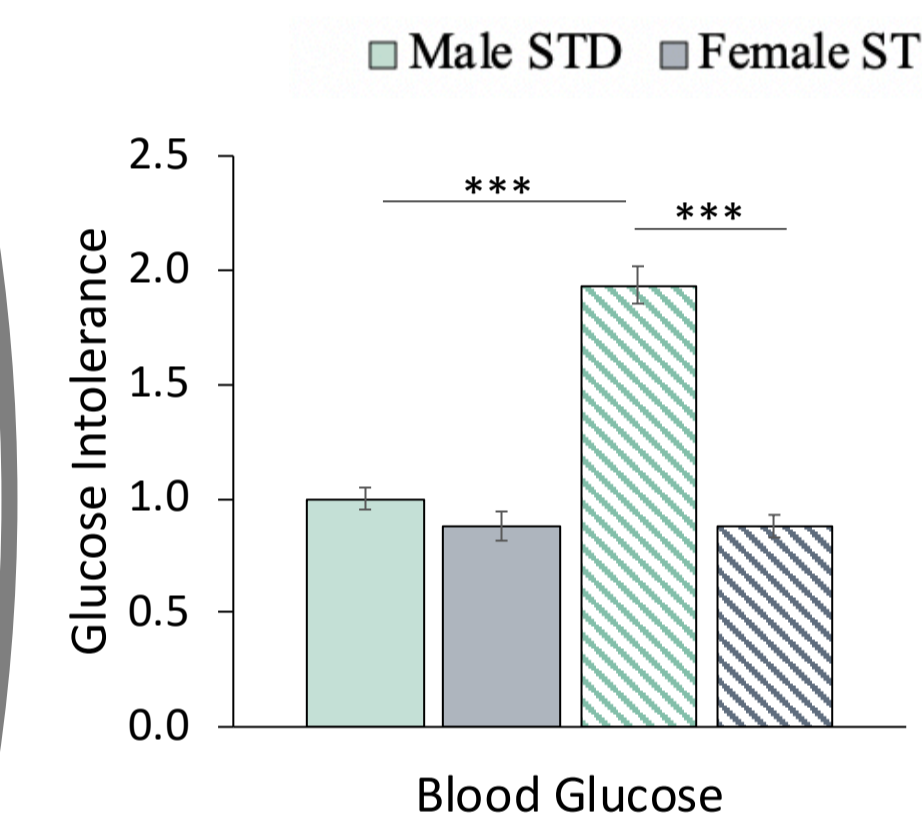


Figure 2. Male mice fed high fat diet have increased glucose intolerance compared to female mice.

HFD reduces metabolic differences

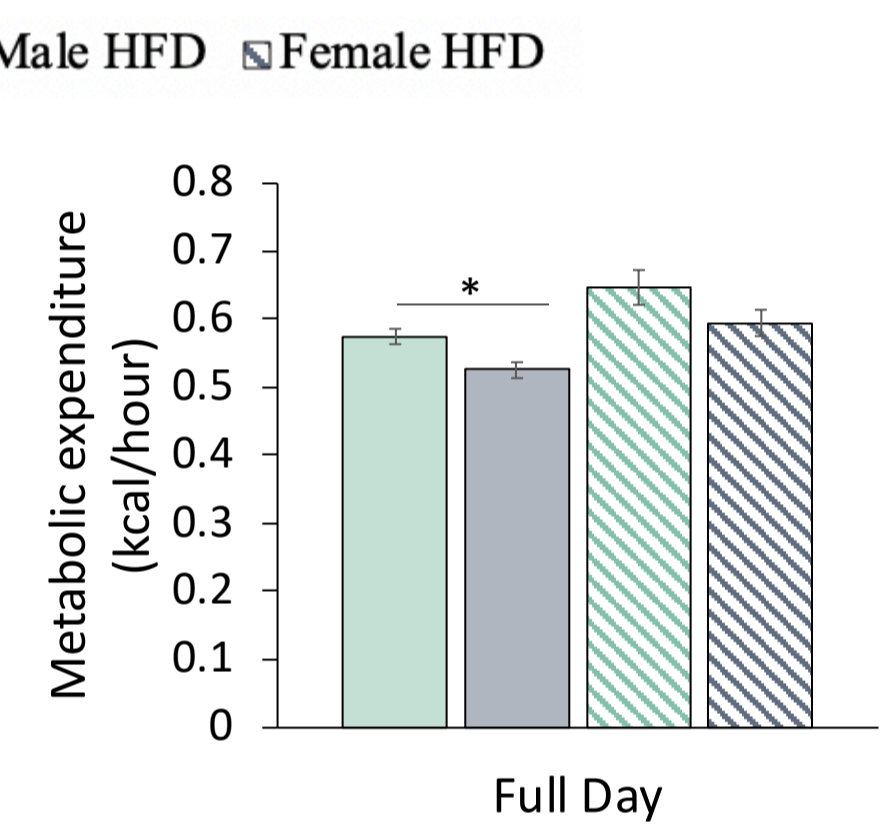


Figure 3. Male mice loose increased metabolic differences when fed high fat diet.

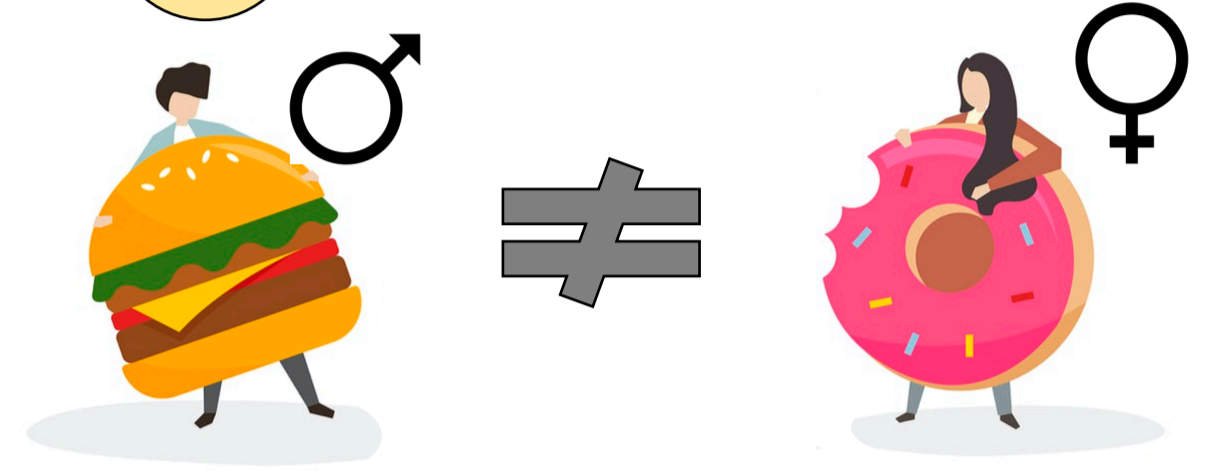
All data is presented as mean ± SEM, n = 10, * P < 0.05, *** P < 0.0001.

Conclusion:



The increased weight gain and glucose intolerance in males might be caused by changes in metabolism.

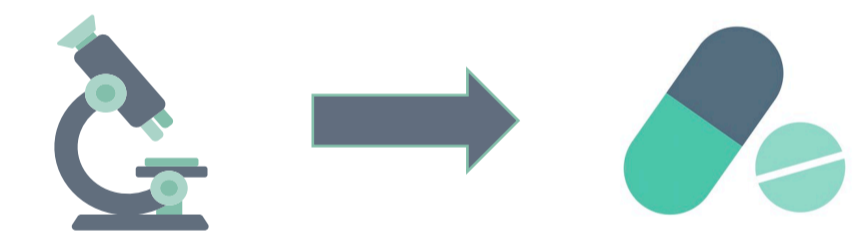
1 THE PROBLEM:



- The UK has the highest rates of obesity in Europe¹.
- In the UK 27% of men and 30% of women are obese².
- Women deposit fat below the skin, men deposit fat around their organs².

From the lab to the clinic

Animal models are used to study the effects and treatments for obesity and associated disease.



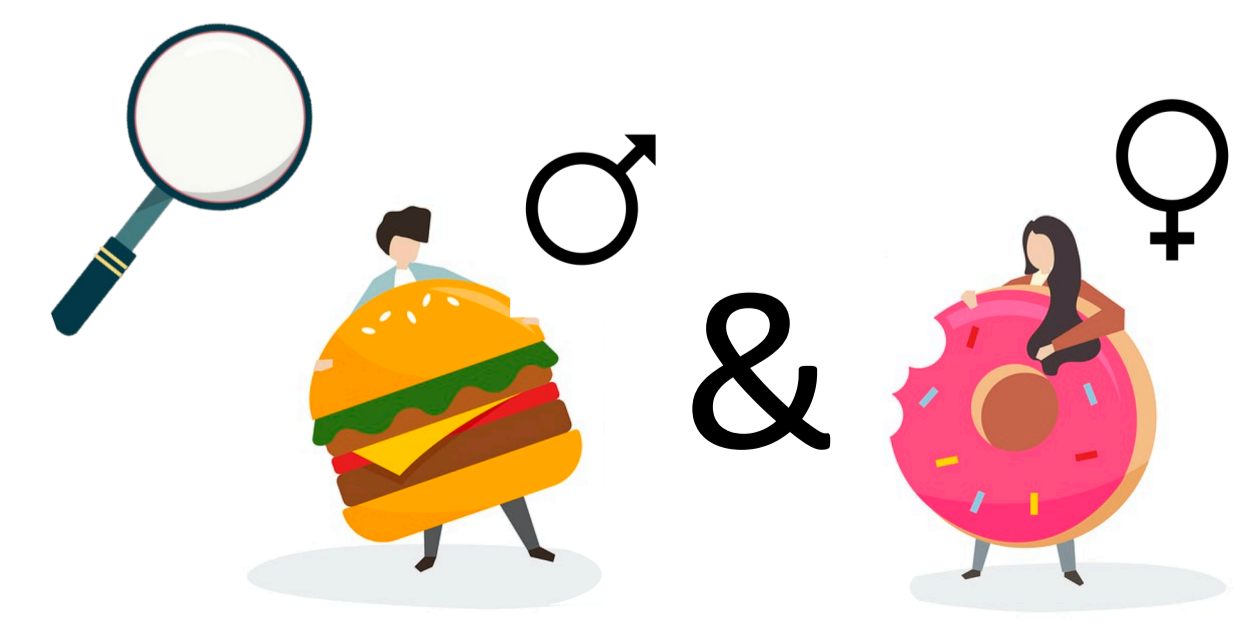
Males and females present differently in the clinic, yet it is common to only use one sex in mouse studies.



Is it sufficient to use only one sex in obesity research?

5 SIGNIFICANCE:

It is **NOT** sufficient to use only one sex in obesity studies. Using both sexes in research will increase translation from lab to clinic.



References:
1. Agha M. and Agha R., The Rising Prevalence of Obesity: Impact on Public Health. (2017) *Int J Surg Oncol*
2. Power ML, Schulkin J. Sex differences in fat storage, fat metabolism, and the health risks from obesity: possible evolutionary origins. (2008) *Br J Nutr* 4
3. https://www.diabetes.org.uk/about_us/news_landing_page/middle-aged-men-twice-as-likely-to-have-diabetes-as-women