A photograph of a small, brown mouse with long whiskers, standing on a white, textured surface. The mouse is facing forward, slightly to the left. Its ears are large and upright. The background is a solid white surface.

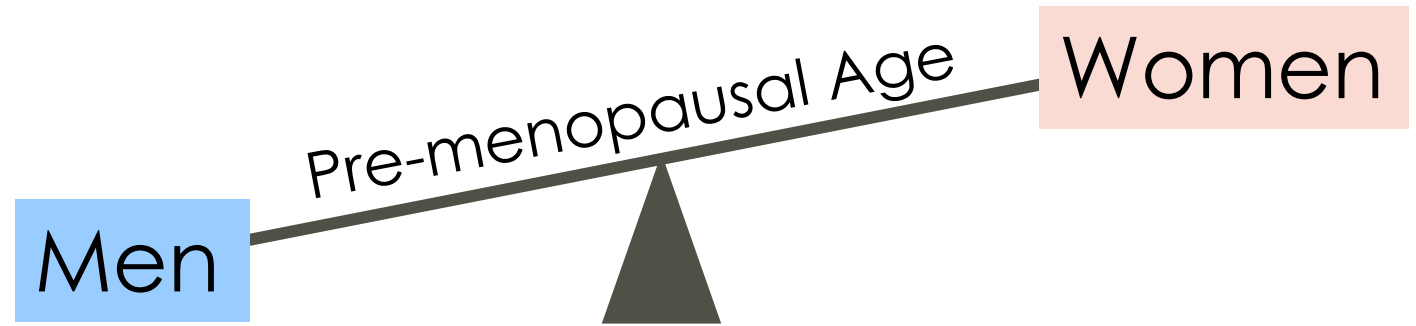
# The Effects of Ovarian Somatic Cells on Post- Menopausal Health

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Sciences, School of Veterinary Medicine, Utah  
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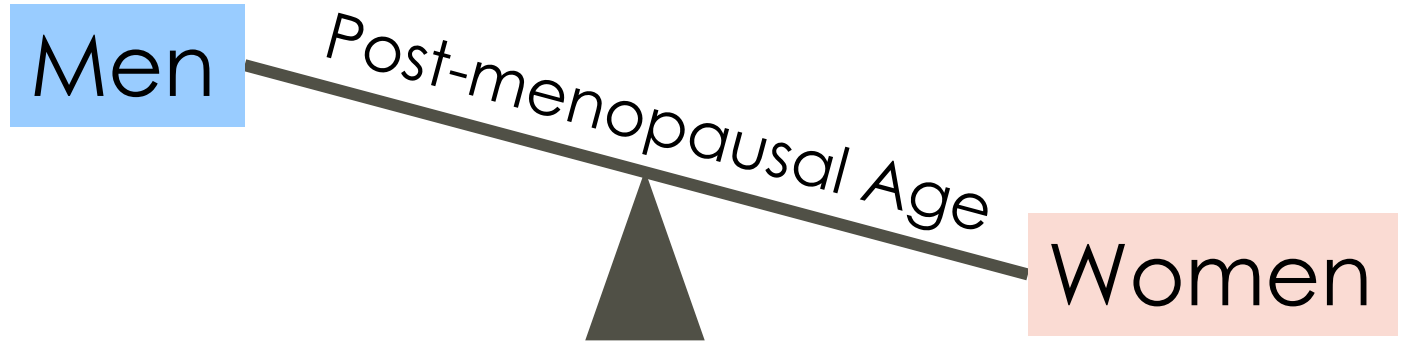
# Background

Young women possess a significant health advantage over similarly-aged men



# Background

**Menopause:** the natural cessation of menstruation and senescence of cyclic ovarian function



# Importance

- Modern medicine has extended our time of dying while our health continues to worsen
- Over 164 million women in the United States
- Over 3.5 billion women in the world

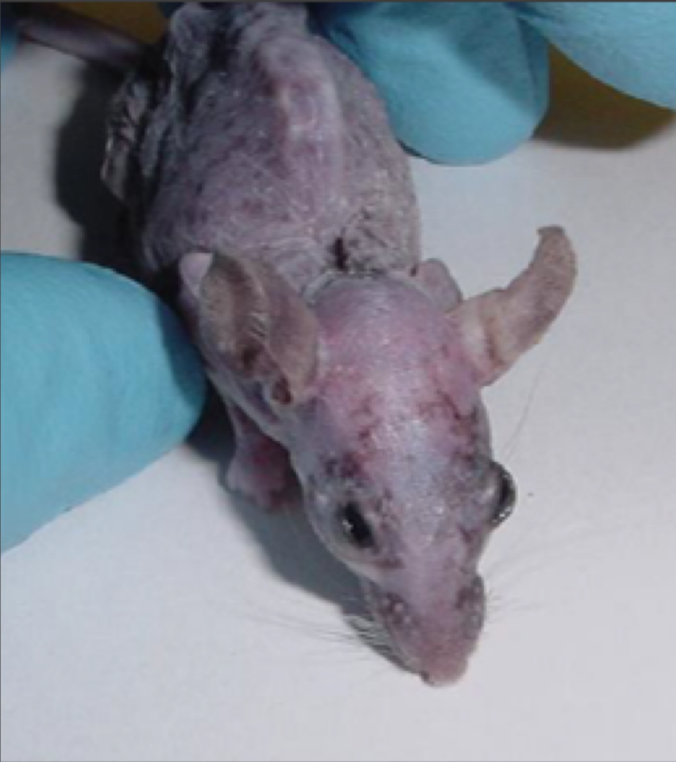




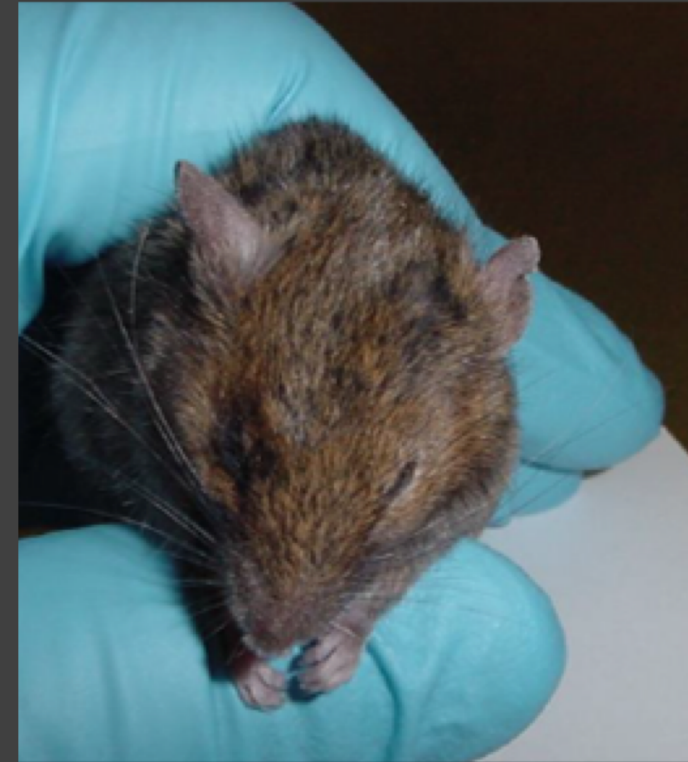
# Previous Studies

(Peterson, et al., 2016) | (Mason, et al. 2015)  
| (Mason, et al., 2011)

## Aged Female Mouse



## Aged Mouse with Young Ovaries

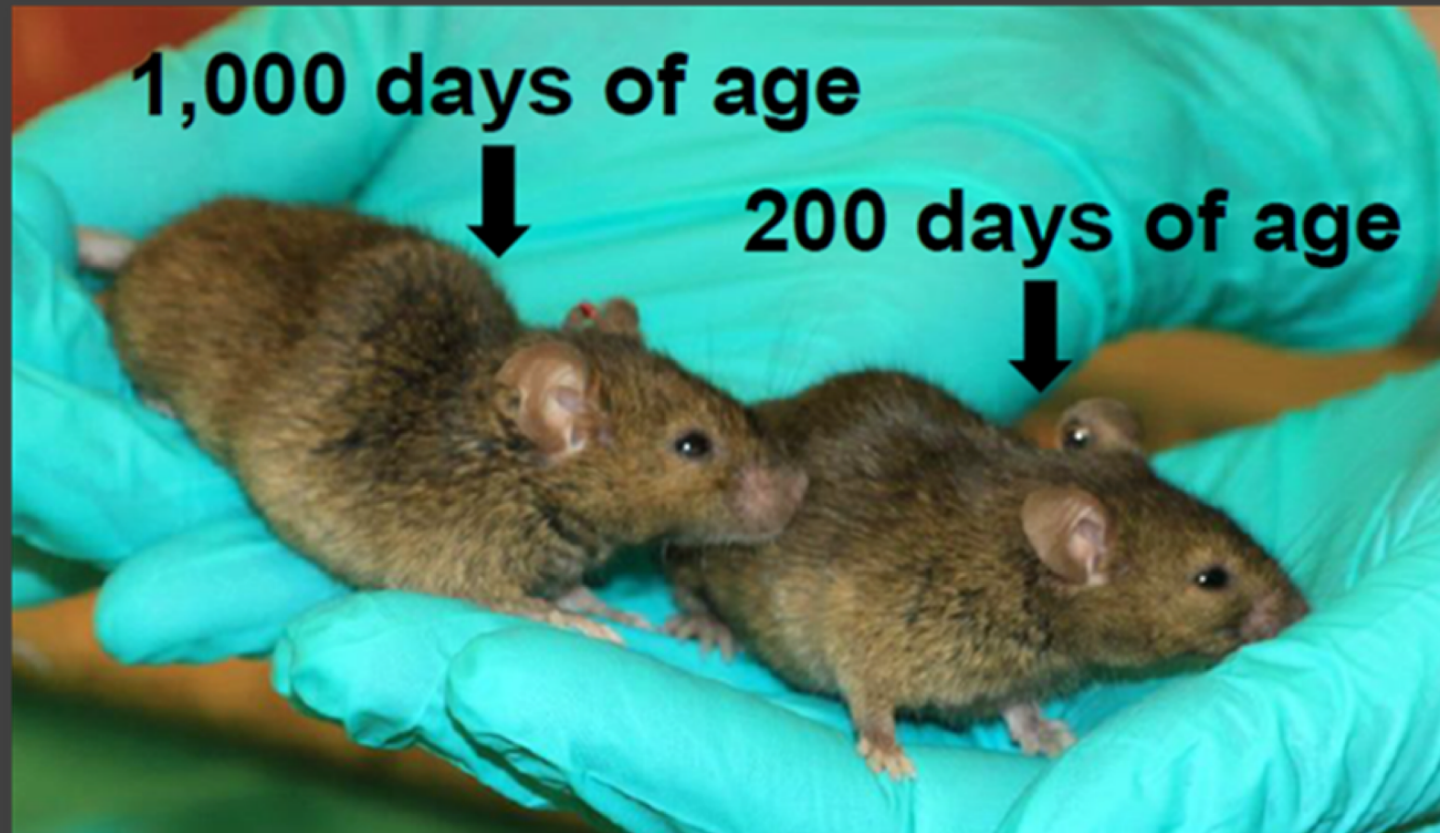


Average Lifespan is 650 days of age (~ 21months)

# Previous Studies

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Ovarian germ cell depletion increased longevity

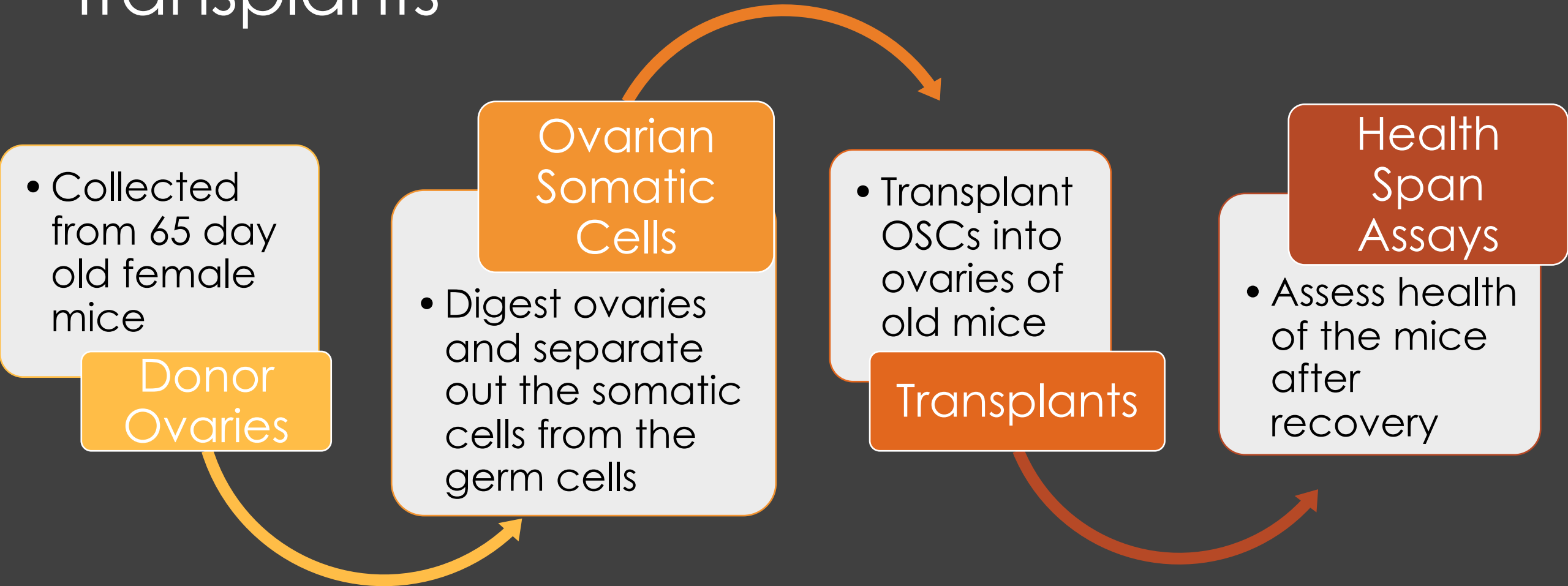




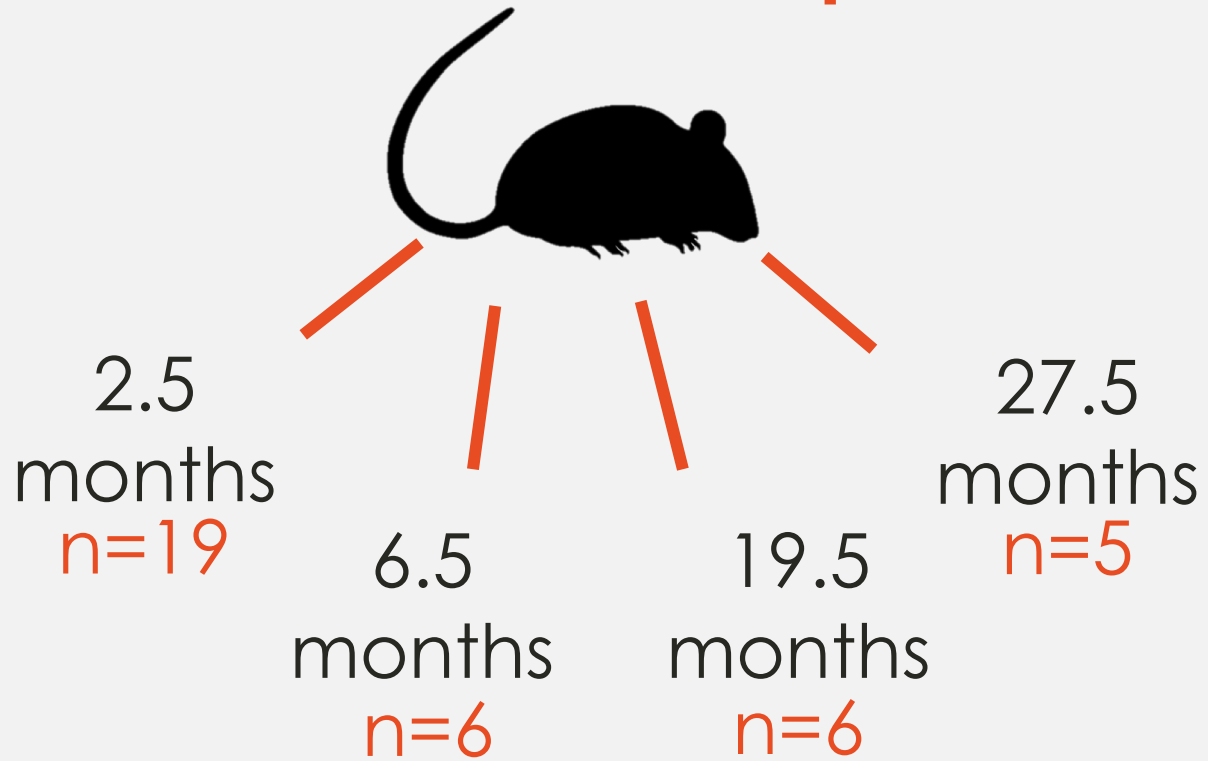
# Hypothesis

- absence of germ cell signaling prompts the ovarian somatic cells to support organismal health
- preserving the perceived potential for germline transmission by improving health

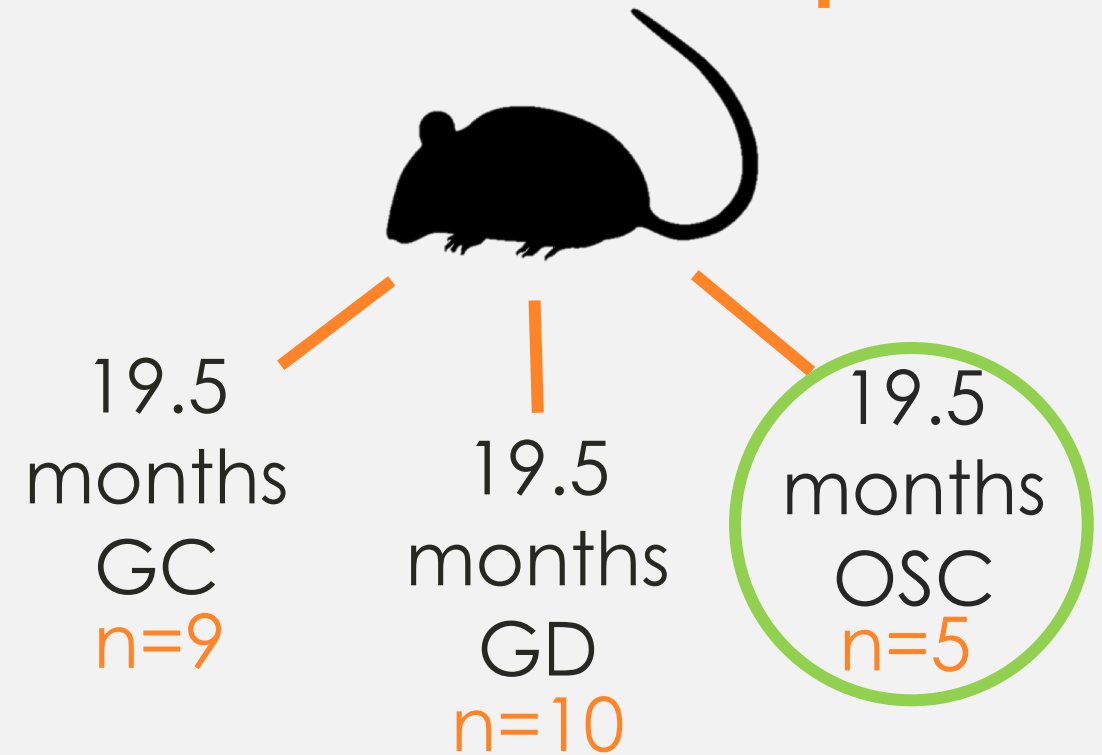
# Methods for Ovarian Somatic Cell Transplants



## Control Group

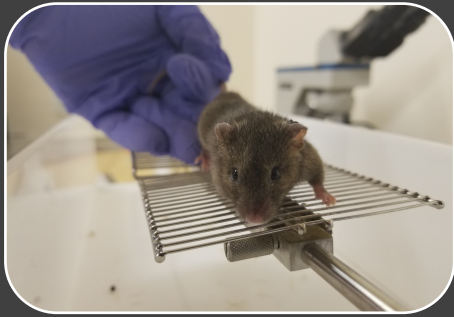


## Treatment Group





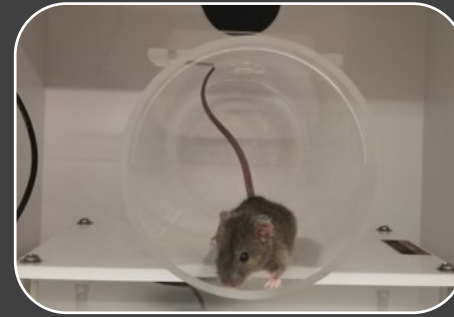
# Health Span Assays



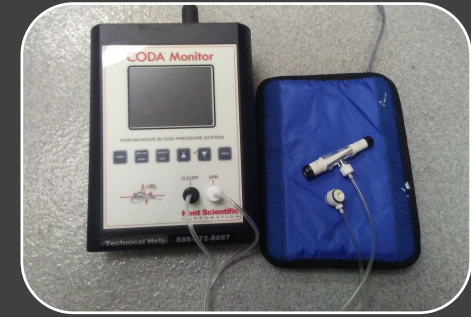
Musculoskeletal



Cognition



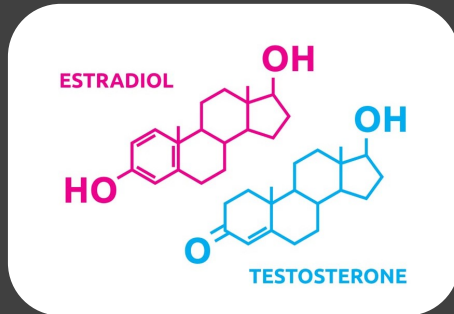
Tremors



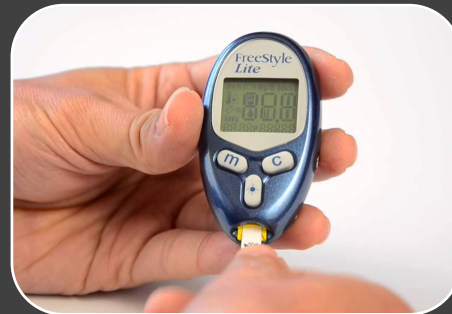
Cardiovascular



Arthritis



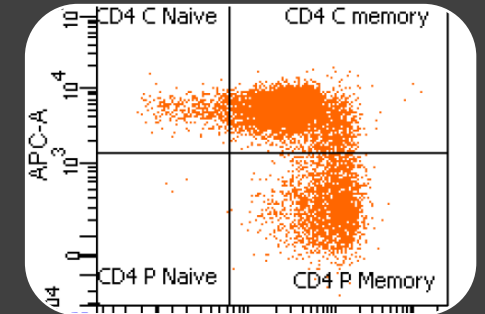
Hormones



Metabolism

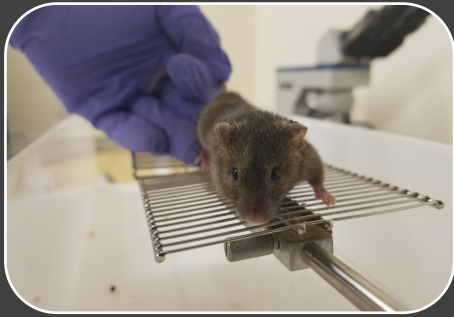


Olfactory



Immunity

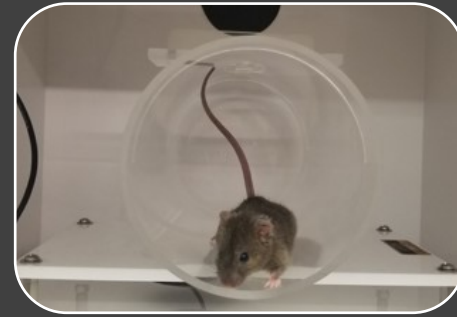
# Health Span Assays



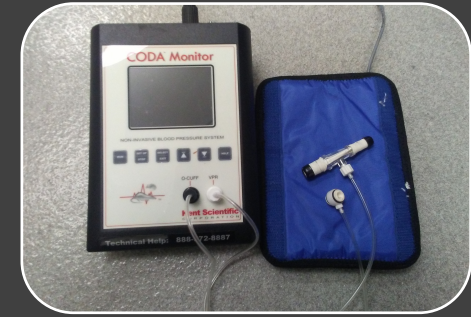
Musculoskeletal



Cognition



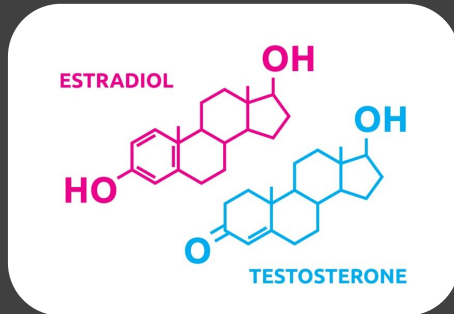
Tremors



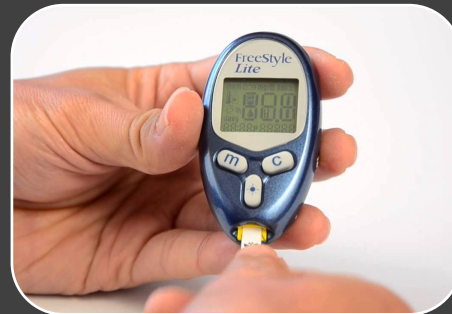
Cardiovascular



Arthritis



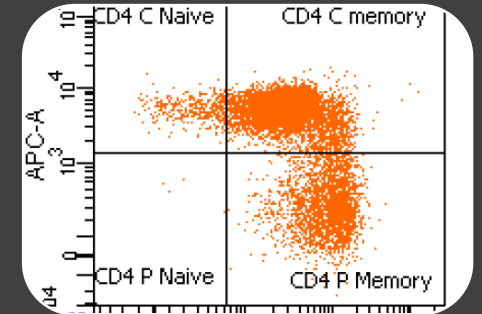
Hormones



Metabolism

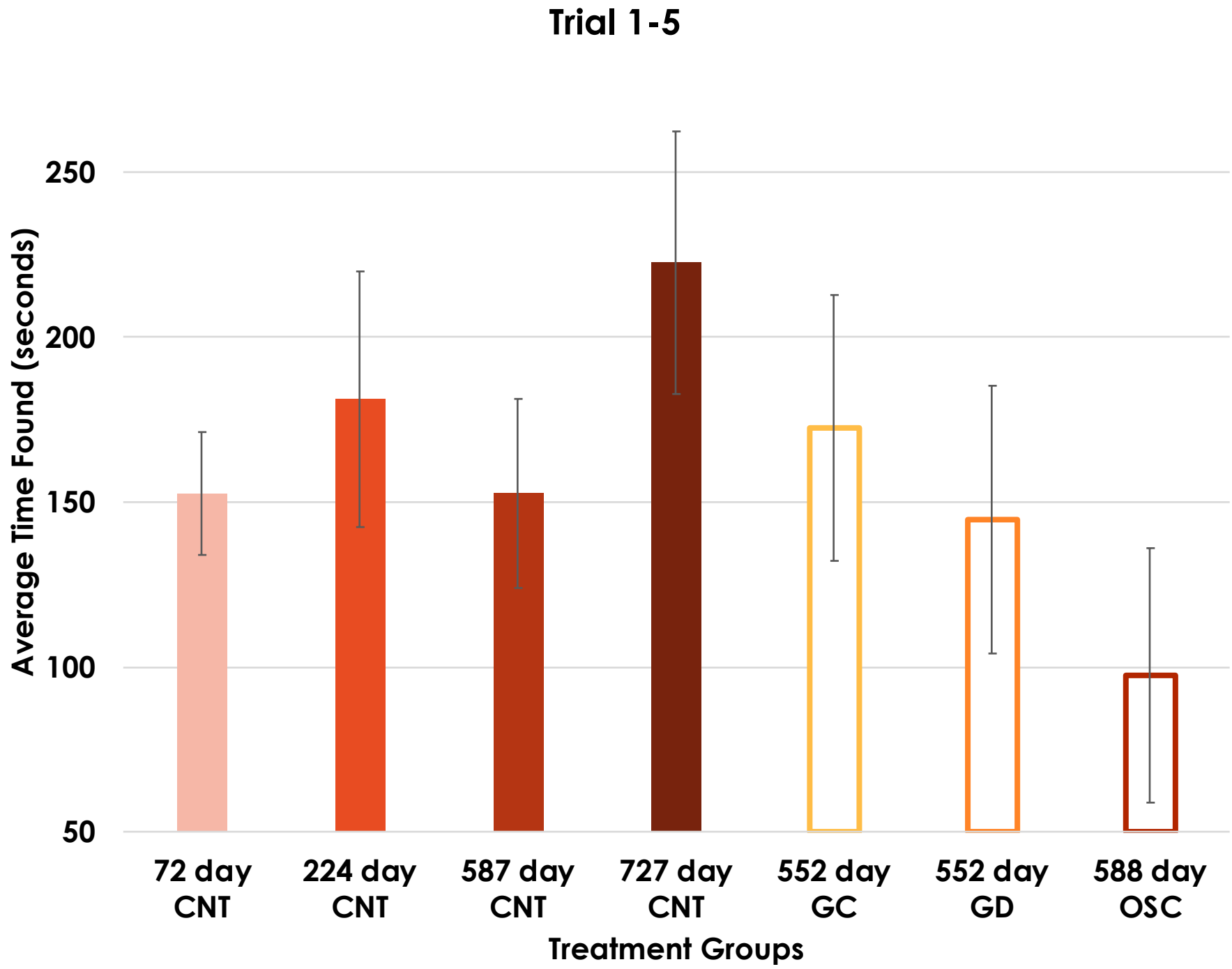


Olfactory



Immunity

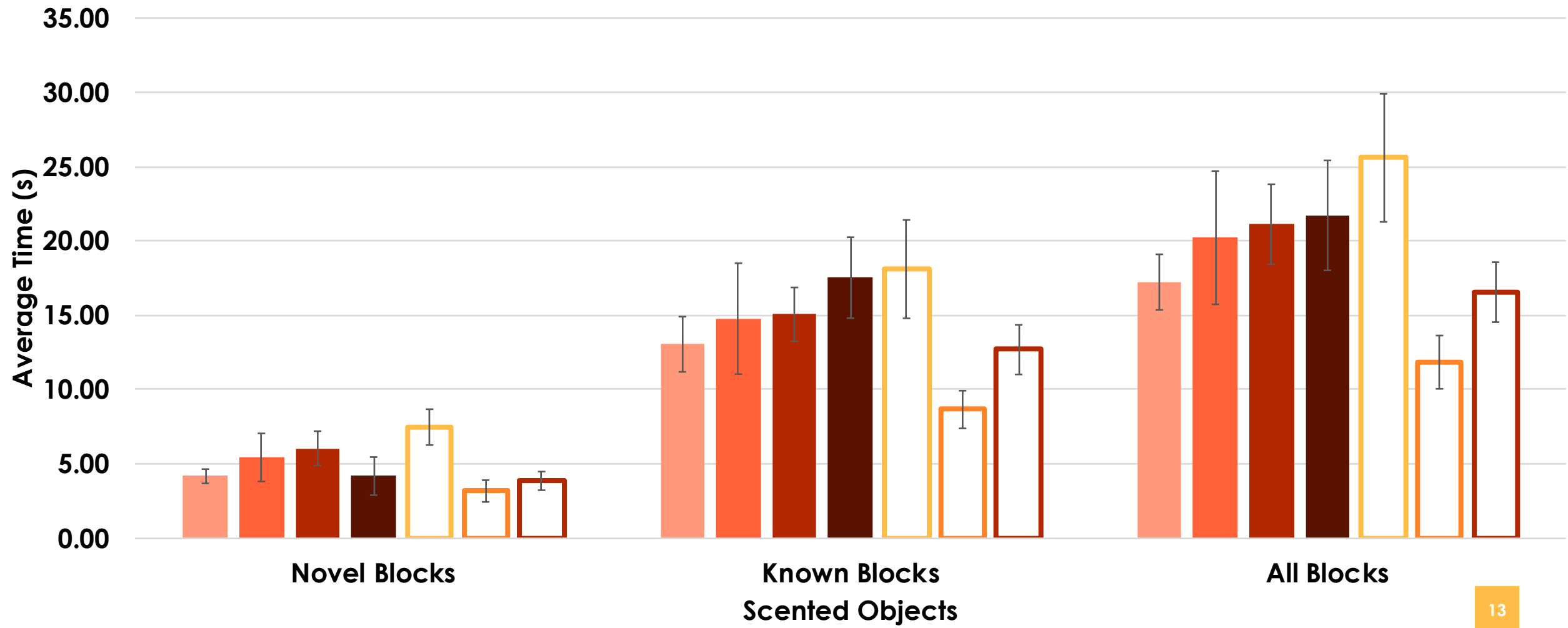
Buried  
Pellet



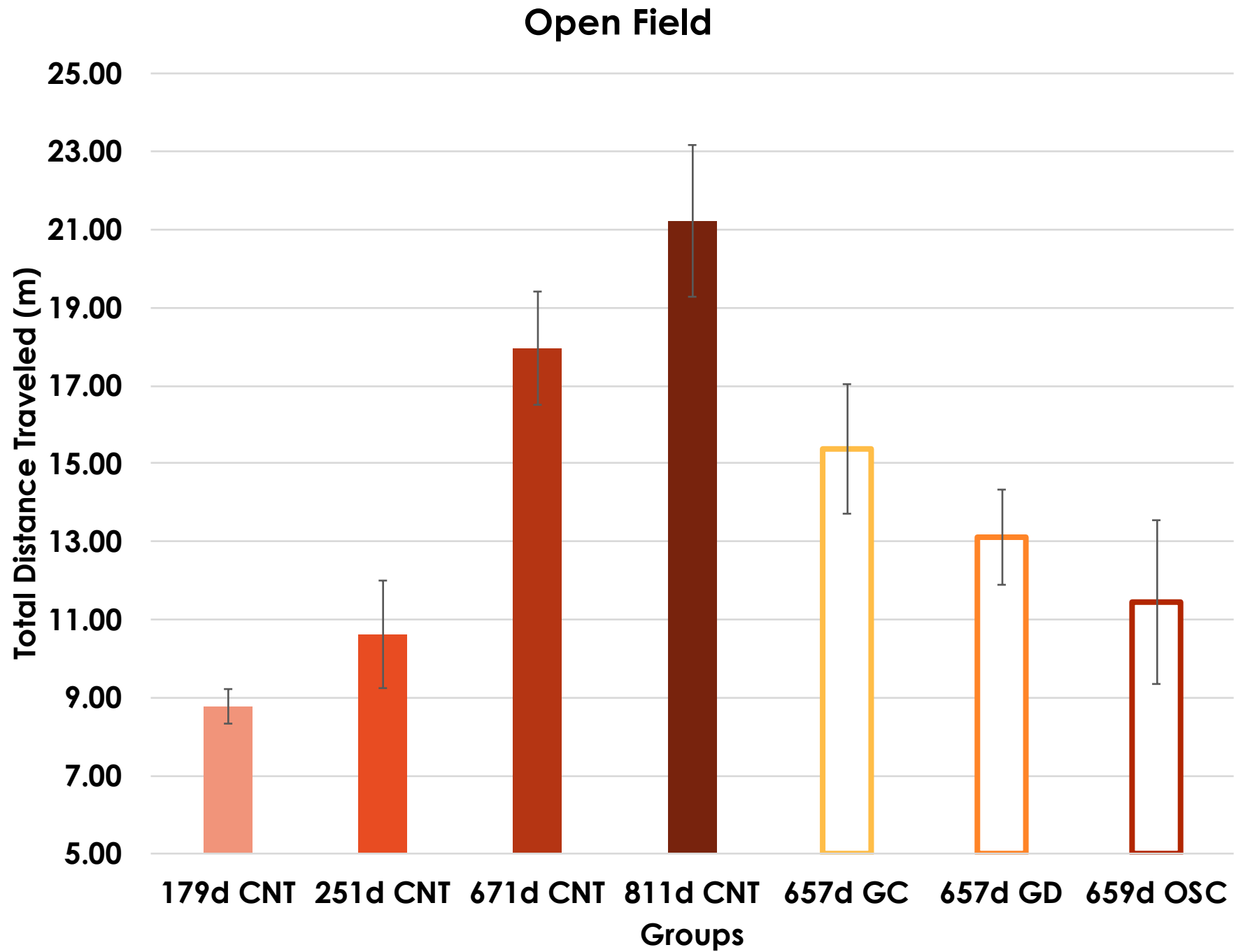
# Novel Block

Average Time Spent with the Different Types of Blocks

183d CNT   251d CNT   671d CNT   811d CNT   663d GC   663d GD   664d OSC

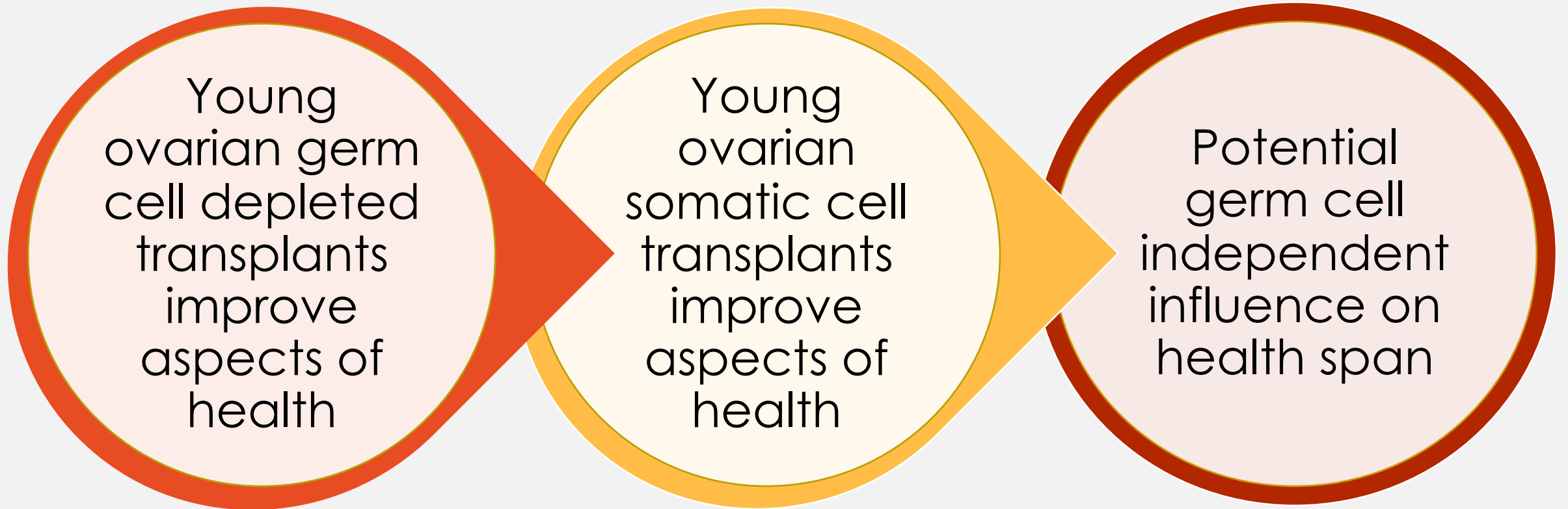


Open Field





# Conclusion



# Future Directions

## Gene Therapy with Fibroblast Cells



Identify the genes responsible for the increase in health



Transfect the desired genes into easily attainable cells



Assess the treatment on health

# Acknowledgments

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- Authors
- Kate C. Parkinson
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- Lisa DeSoi

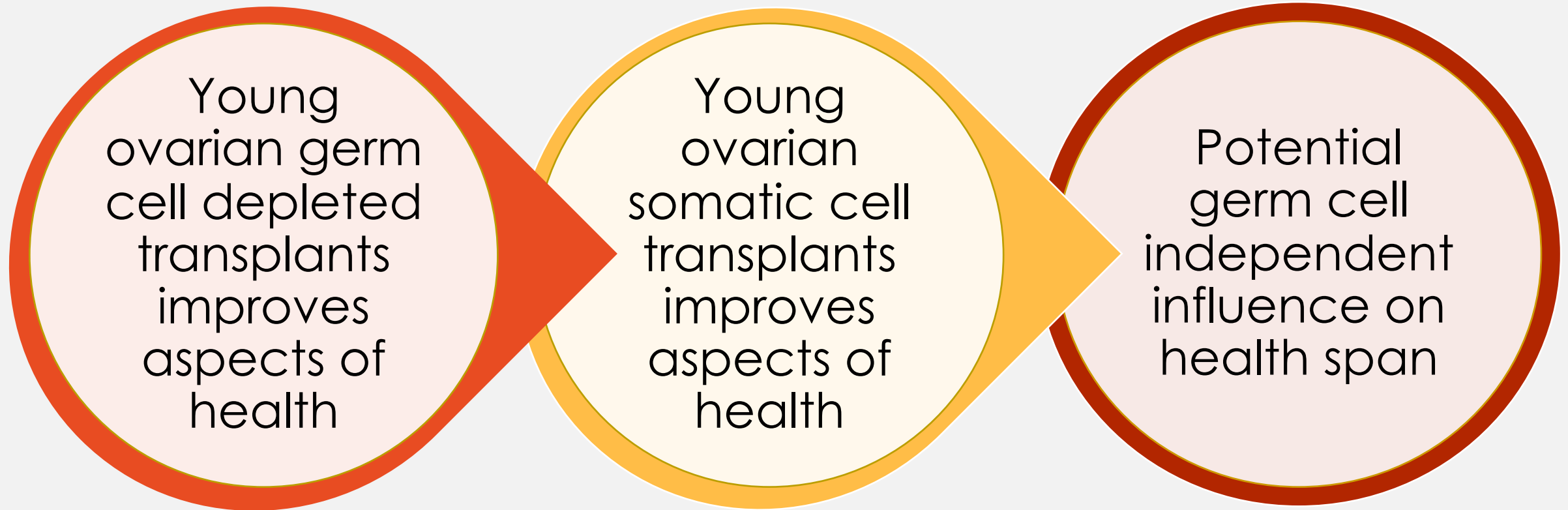
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- Dr. Clay Isom
- Dr. Heloisa Rutigliano
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# Conclusion



Potential therapeutic treatment for post-menopausal decline in health with further understanding of ovarian somatic cells.