

## Background

- Rapidly rising global temperatures reflect a need to investigate young girl's ability to thermoregulate
- Heat Tolerance is the ability to withstand or endure exposure to high temperatures without experiencing heat related illnesses
- Heat Acclimation occurs with repeated exposure to heat stress eliciting physiological adaptations to improve thermal tolerance

## Objectives

- Investigate thermoregulatory responses to exercise in heat in young girls when directly compared to boys completing an identical exercise routine
- Develop a heat tolerance routine to assess performance differences in hot conditions within children

## Methods

- 8-10 year old healthy participants
- Analyzed a 6-day heat acclimation routine looking at sex-based physiological and perceived rating differences
- Formulated a 60 min (Four 15 min bouts of exercise) heat tolerance routine
- Variables measured include core body temperature, skin temperature, heart rate, rated perceived exertion, thermal sensation, thirst and thermal comfort every 5 min

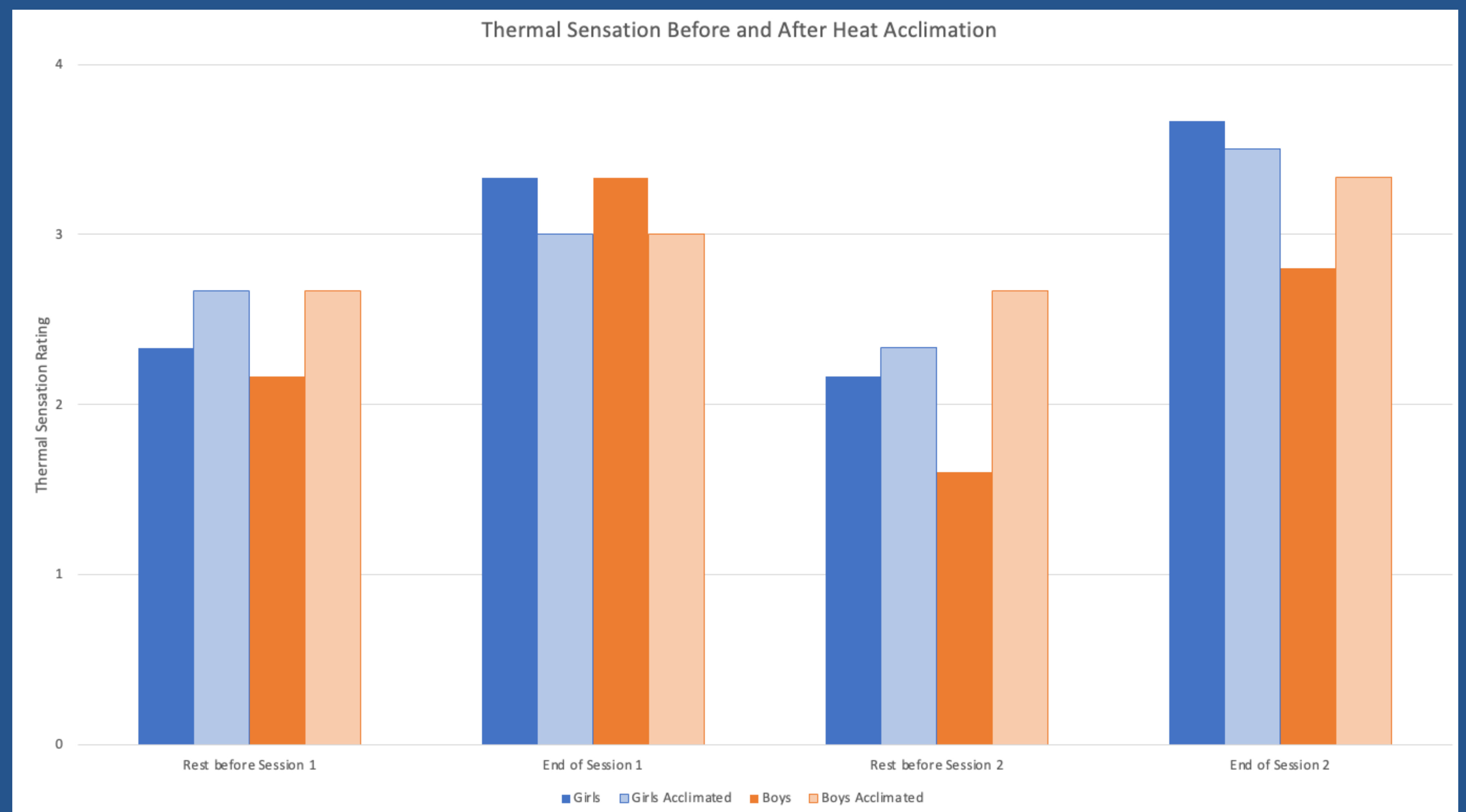
## Results

- Existing results found girls reporting higher values in thermal sensation, rated perceived exertion and heart rate after acclimation
- Core body temperature in young boys was found to be higher than girl counterparts reflecting a need for further research
- Sample results taken from young adult females testing the developed heat tolerance routine providing feedback for required adjustments
- Young adult female results found increasing HR, RPE, core body temperature and skin temperature

## Discussion

- Next steps include testing the heat tolerance routine in children and evaluating sex-based differences between the two populations
- With increasing intensity and frequency of heat waves and associated severe heat-related illnesses it is imperative to investigate thermoregulation in young girls to help establish health and safety guidelines

Based on the existing literature, it is hypothesized that prepubescent girls will perform differently than boys on rating of perceived exertion and thermal sensation, and physiological variables to be comparable when adjusted for physical variables.

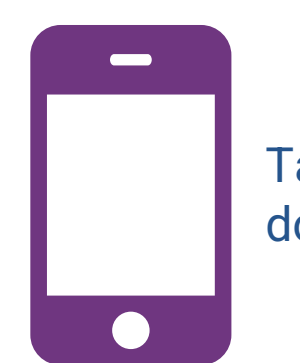


## References

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