



## Background

Obesity in midlife is a risk factor for cognitive decline and significantly contributes to the increasing prevalence of dementia worldwide.<sup>1</sup> Physical activity and exercise are essential in obesity management,<sup>2</sup> but whether they lead to improved cognitive function in middle-aged and older adults with obesity is not well understood. High-intensity interval training (HIIT) involves alternating periods of high-intensity exercise with periods of lower-intensity or no exercise and can improve cardiometabolic disease risk factors in adults.<sup>3</sup>

## Objectives

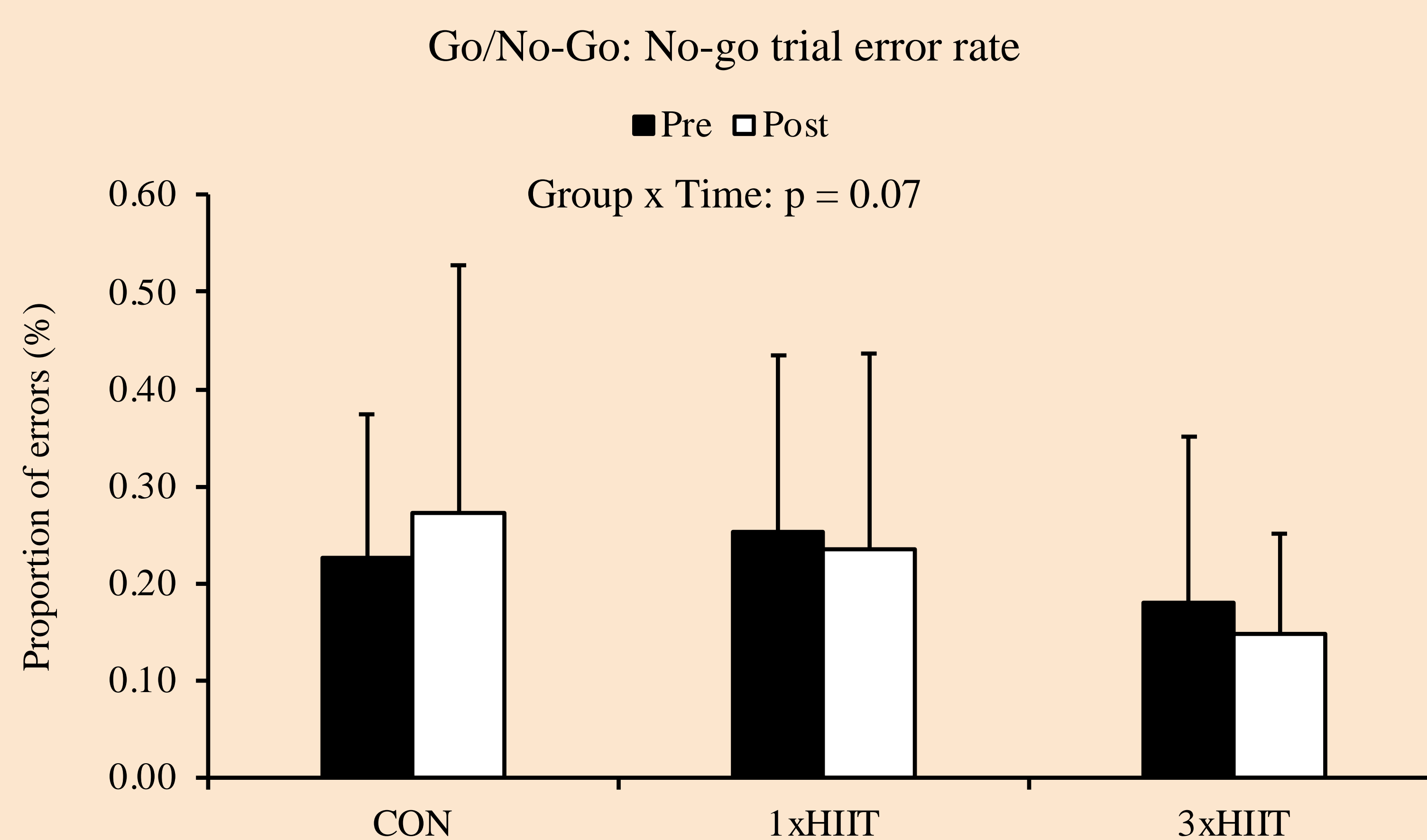
This study is a secondary analysis of an ongoing randomized controlled trial and examined the effects of HIIT on cognitive function in middle-aged and older adults with central obesity.

## Methods

This study recruited overweight (BMI  $\geq 23$ ) and centrally obese (waist circumference  $\geq 90/80$  cm for males/females) Chinese adults (aged  $\geq 45$  years), who were randomly assigned to a usual care control group (CON), a once-weekly HIIT group (1xHIIT), and a thrice-weekly HIIT group (3xHIIT). Response inhibition was assessed at baseline and after the 16-week intervention using the no-go trial error rate of the Go/No-Go task.

## Results

Data on 63 participants (mean [SD] age = 56.0 [7.1] years), with 23 allocated to CON, 17 to 1xHIIT, and 23 to 3xHIIT, were analyzed with baseline values as covariates. After the intervention, a trend toward a significant group-by-time interaction was observed in response inhibition ( $p = 0.07$ ).



## Conclusion

Once completed, this study could have sufficient power to demonstrate the positive effects of HIIT on cognitive function in middle-aged and older adults with central obesity. The conclusion will be based on a final sample size of 149 participants, which is sufficient to detect a moderate effect size of Cohen's  $d = 0.5$ .

## References

- Livingston G, et al. *Lancet*. 2020; 396: 413–446.
- Bray GA, et al. *Lancet*. 2016; 387: 1947–1956.
- Campbell WW, et al. *Med Sci Sports Exerc*. 2019; 51: 1220–1226.

## Acknowledgements

Funding: General Research Fund (17105920).

