

# HIIT vs. Resistance Training: Improving Insulin Resistance Training in PCOS

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## Introduction:

- Polycystic Ovary Syndrome (PCOS) affects approximately 7-16% of reproductive aged women, and it is strongly correlated with insulin resistance.
- Insulin Resistance contributes to increased risks of developing cardiovascular disease, infertility, type 3 diabetes, and an overall reduced quality of life in women with PCOS.
- Exercise is a first line of defense intervention for managing the endocrine and metabolic symptoms of PCOS.
- High Intensity Interval Training (HIIT) and resistance training help to improve metabolic health through different physiological mechanisms, which include enhanced insulin signaling and glucose reuptake.

## Key Findings:

### HIIT Effects:

- Consistently produced greater reductions in insulin resistance.
- Intervention was effective independent of weight loss.
- Mostly effective at >85% max heart rate.

### Resistance Training:

- Overall improved body composition within women.
- Produced modest or very slight reductions in insulin resistance.
- More effective when combined with HIIT exercise or aerobic intervention as well.

## Data Analysis and Results:

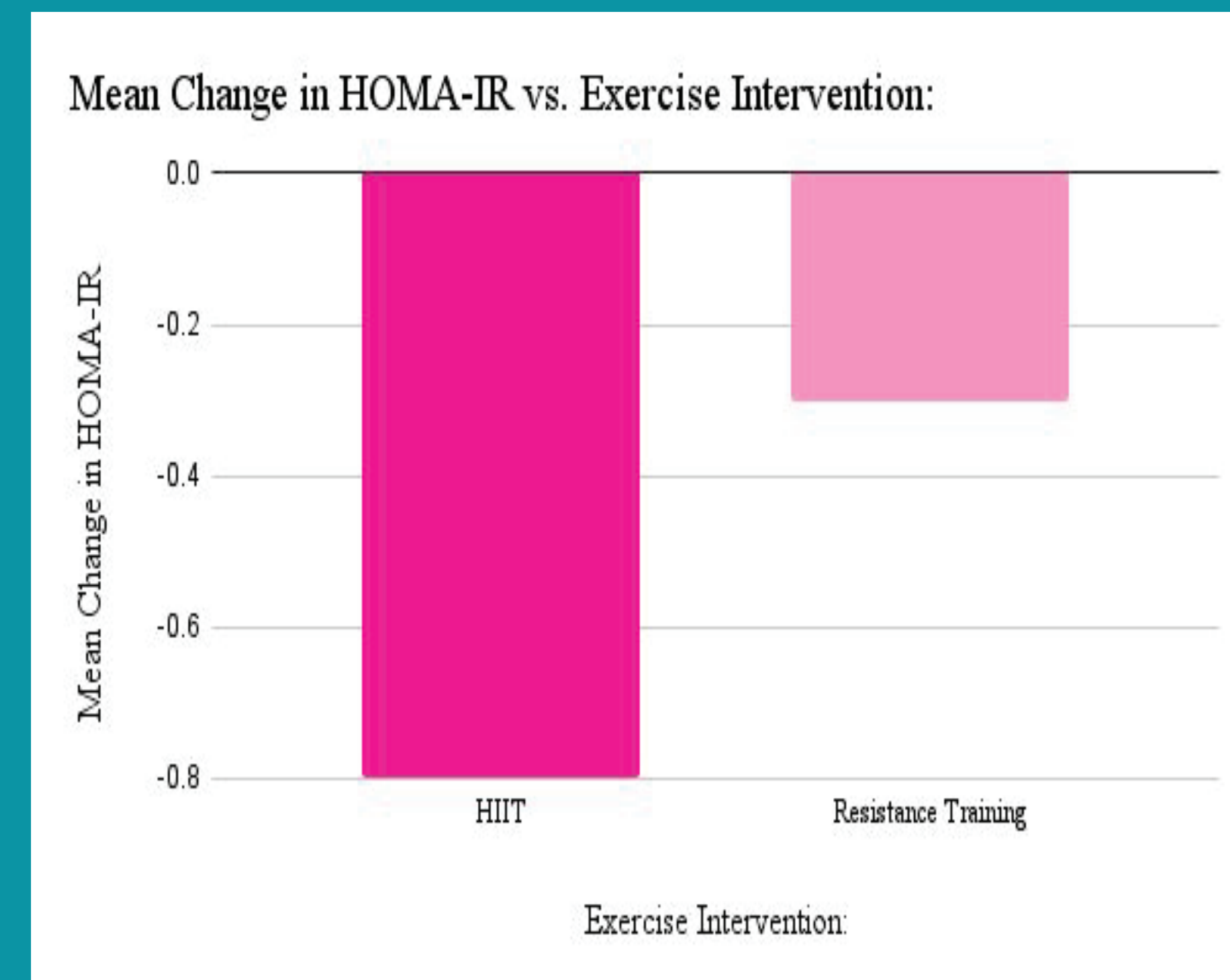


Figure 1. Synthesized changes in insulin resistance (HOMA-IR) following HIIT and resistance training interventions in women with PCOS. Negative values indicate improvement (HIIT: -0.80, and Resistance Training: -0.30)

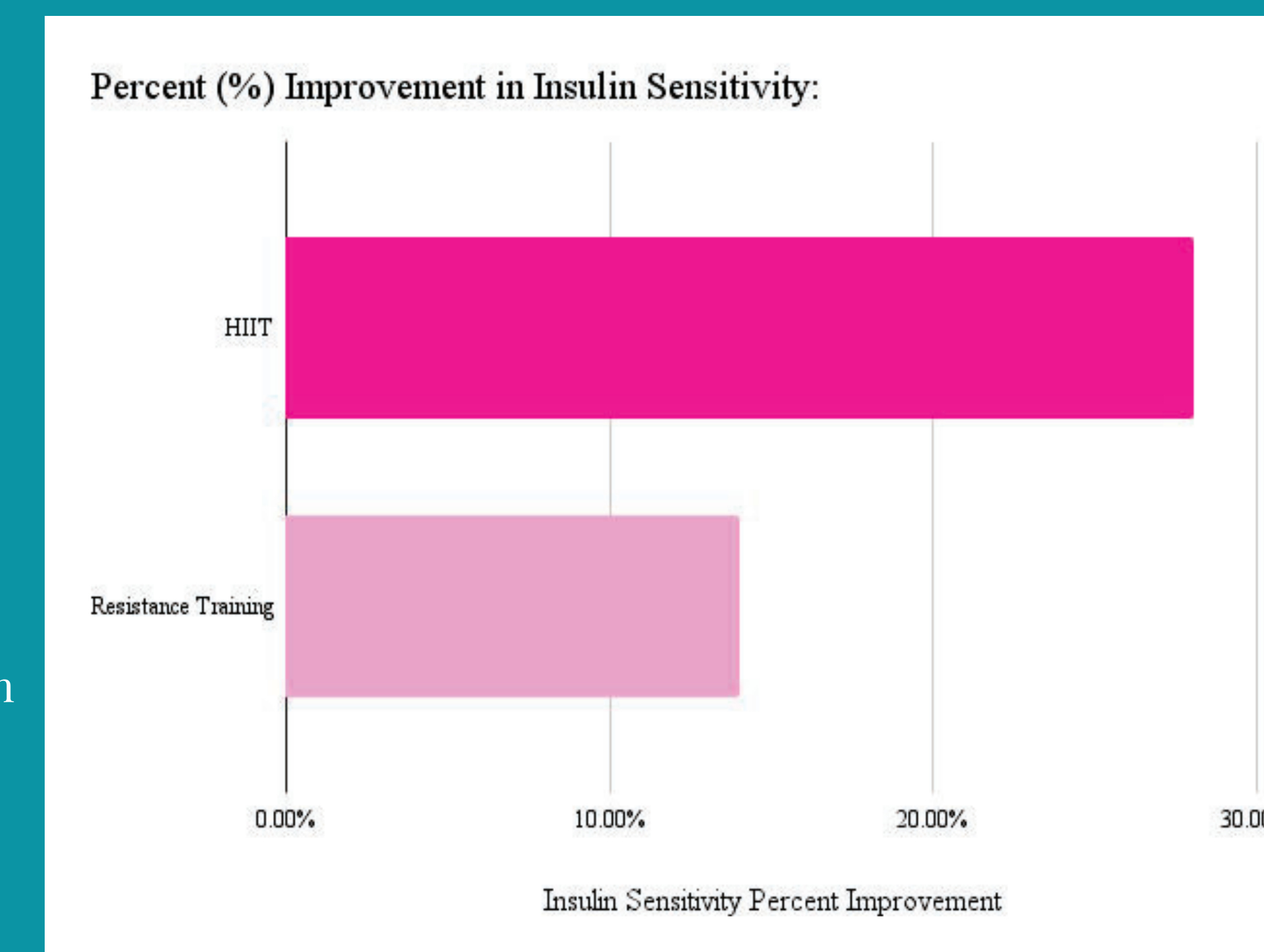


Figure 2. High-intensity interval training produced nearly double the improvement in insulin sensitivity compared to resistance training in women with PCOS

## Discussion/Implications:

- Exercise intensity is a huge determinant of insulin sensitivity improvement.
- HIIT provides superior metabolic benefits compared to just resistance training alone.
- Resistance training just prove to still remain beneficial for muscle mass and body recomposition along with metabolic support.

### Healthcare Implications:

- HIIT should be prioritized in exercise prescriptions for women with PCOS.
- Resistance training should be supplementary, and make it known that benefits can be made independent of weight loss.

## Conclusion:

- Both HIIT and resistance training improve metabolic health for women with PCOS.
- HIIT however consistently yields greater improvements in insulin resistance.
- Future research should explore combined HIIT and resistance training protocols, and exercise prescriptions for PCOS should emphasize training intensity.

## Methods:



My overall Study Design was a Systematic Literature Review of Peer Reviewed Research.

### Data Sources Used:

- PubMed
- CINAHL
- SportDiscus
- Academic Search Premier

### Eligibility Criteria Included:

- Population: Women aged 18-45 years old with a clinical diagnosis of PCOS.
- Interventions: High Intensity Interval Training (HIIT) and/or resistance training.
- Comparators: Resistance Training or no-exercise control group.
- Outcomes: Insulin Resistance (HOMA-IR, or fasting insulin)
- Study Designs: Randomized Controlled Trials, Quasi-Experimental, and Comparative Studies.

After the articles were screened by title, abstract, and full text.

10 studies were deemed to meet the inclusion criteria and were synthesized.

The outcomes of each included study compared across different exercise modalities and intensity levels.

Table 1. Summary of Participant Characteristics Across Included Studies

Characteristic:	HIIT Studies:	Resistance Training Studies:
Number of Studies:	7	6
Total Participants (n):	~180	~150
Age Range (years):	18-45	18-45
Mean BMI (kg/m <sup>2</sup> ):	27-38	27-38
PCOS Diagnosis:	NIH/Rotterdam	NIH/Rotterdam

## References:

