

Can HIIT Provide the Path of Greatest Resistance?

ACE INVESTIGATES WHETHER HIIT RESISTANCE EXERCISE IS SUPERIOR TO TRADITIONAL RESISTANCE TRAINING

Much of the focus of high-intensity interval training (HIIT) in both research and practice has been on aerobic exercise—and for good reason. HIIT aerobic exercise has repeatedly been shown to improve cardiorespiratory fitness and vascular function in a time-efficient manner. However, research on HIIT resistance training has been lacking until now.

To evaluate how effective the HIIT paradigm is in relation to resistance training, ACE enlisted the help of Lance Dalleck, PhD, and his team of researchers in the High Altitude Exercise Physiology Program at Western State Colorado University.

THE STUDY

The researchers recruited 48 nonsmoking men and women aged 21–59, all of whom were low- to moderate-risk for cardiovascular disease and reported no resistance training within the previous 6 months.

Prior to the study, participants completed baseline testing, including one-repetition maximum (1-RM) and 5-RM tests for 10 exercises: back extension, biceps curl, chest press, lat pulldown, leg curl, leg extension, leg press, seated row, shoulder press and triceps extension.

After baseline testing, the participants were randomly assigned to one of three groups: a nonexercise control group,

a HIIT resistance exercise (HIIT-RE) group or a traditional moderate-intensity resistance exercise (MI-RE) group. The resistance exercise groups performed 6 weeks of exercise training. The MI-RE program was based on standard industry guidelines, while the HIIT-RE workouts were based on participants' baseline 5-RM tests for each exercise.

The HIIT-RE group performed 1 set of 5 repetitions of each of the 10 exercises for the duration of the program, while the MI-RE group performed 1 set of 10 repetitions for the first half of the program and then 2 sets of 12 repetitions for the second half. The HIIT-RE workouts took 20 minutes or less to complete, whereas the MI-RE workouts took about 45 minutes.

the training. In contrast, all 1-RM and 5-RM values had improved significantly at the 3-week mark in the HIIT-RE group. The achievement of such rapid results is important to highlight, as seeing these gains in only 3 weeks may improve motivation levels in many clients during the early phase of a new workout, when they are typically most prone to frustration and dropout.

The results of this study support the tremendous potential to implement HIIT-RE into the exercise programs of time-constrained adults. Muscular fitness is an important component of function, health and well-being, so the benefits of this type of workout extend far beyond strength or aesthetics. These preliminary findings are important for exercise physiologists, health and fitness professionals, and others who design exercise programs and promote physical activity in the adult population.

EXERCISE PRESCRIPTION FOR HIIT-RE AND MI-RE GROUPS THROUGHOUT THE INTERVENTION

HIIT-RE GROUP		
Days/Week	Sets/Reps	Intensity
Week 1		
2	1/5	100% 5-RM
Week 2		
3	1/5	100% 5-RM

MI-RE GROUP		
Days/Week	Sets/Reps	Intensity
Week 1		
2	1/10	60% 1-RM
Week 2		
3	2/12	70% 1-RM

THE BOTTOM LINE

There are three key takeaways from this research:

1. HIIT-RE is just as effective as (and in some instances more effective than) traditional MI-RE at improving some measures of cardiometabolic health and muscular fitness.
2. HIIT-RE sessions improve muscular fitness in a time-efficient manner; those sessions were less than half as long as MI-RE sessions but still achieved favorable adaptations.
3. Preliminary evidence suggests that HIIT-RE improves muscular fitness more rapidly than traditional MI-RE does. Indeed, for a few MI-RE exercises there were no significant improvements in 1-RM and 5-RM values until 6 weeks into

THE RESULTS

Body fat percentage decreased significantly for both exercise groups, while systolic blood pressure and low-density lipoprotein (“bad”) cholesterol decreased significantly in the HIIT-RE group only.

In terms of muscular fitness, both training groups saw significant improvements in all 1-RM and 5-RM values for all resistance exercises.

For more independent, ACE-sponsored research, go to ACEfitness.org/Certified