

[Short Sprint Interval Training](#)

Burgomaster et al (2003) reported 6 sessions of Short Sprint Interval Training (SIT) over 2 weeks dramatically improved cycle endurance capacity in recreationally trained men and women. During cycling at 80% of VO₂max, average time to exhaustion increased from approximately 25 minutes to 51 minutes (~101%)!

Hughes et al (2004) demonstrated 6 sessions of SIT Training over a 2 week period increased muscle oxidative capacity and altered muscle glycogen metabolism in recreationally active young men. SIT decreased the time required to complete a fixed amount of work (10.4%), increased resting muscle glycogen by 53%, and appeared to decrease reliance on non-oxidative energy metabolism. SIT consisted of 4 to 7 "all out" 30 second Wingate tests, separated by 4 minutes of recovery.

Tremblay et al (1994) compared aerobic versus sprint exercise on the cycle ergometer (see [HIIT](#)). The sprint group lost over 3 times as much body fat as the aerobic group despite of only expending less than half as many calories during exercise.

It was recognized that [creatine phosphate recovery](#) can take about 4 minutes between maximal sprints (McCartney 1986). Bogdanis (1995) reported after a 30 second cycle ergometer sprint, PCr resynthesis reached 64% of pre-exercise levels after 90 seconds rest and 85% of pre-exercise levels after 6 minutes rest. Full PCr repletion may take longer after repeated sprints than following a single sprint.

Tremblay used a passive recovery between sprint bouts, resting until heart rate returned to 120 to 130 bpm. Yet, active recovery hastens local lactate clearance (Corder 2000) and provides superior performance to passive rest in repeated short-term, high intensity cycling sprint bouts (Signorile 1993).

SIT, or HIIT, not to be confused with [traditional interval training](#) is an advanced technique to be used only after at least 6 weeks of a general conditioning program. Here are guidelines and ideas for beginning a SIT program and other ways to incorporate this sort of training into your routine:

General Guidelines

- Warmup
 - Specific to movement
 - Alternate progressively intense warmups between short active recovery periods
- Workout
 - Near maximal sprints followed by 4 minute
 - Repeat multiple times
- Duration
 - Begin with 2 to 3 workout bouts for your first workouts
 - Over the next weeks progressively increase duration, number of bouts, and speed
- Frequency
 - 2-3 non consecutive days
 - Ideally days that weight training is not performed

Traditional Sprints (Outdoor on Track)

- Warmup
 - 2 min brisk walk then 25% jog (30 sec)

- 2 min brisk walk then 50% run (20 sec)
- 2 min brisk walk then 90% sprint (15 sec)
- 3 min walk
- Workout:
 - Sprint 100% (5 to 10 sec) then 4 minute walk
 - Repeat multiple times

Incline Walking (Treadmill)

- Warmup
 - 5 min walk (0 Grade) then brisk walk (Incline Grade)
 - 3 min walk
- Workout
 - Peaks: Very brisk walk at highest incline that can be sustained for 30 to 60 seconds
 - Valleys: 4 min walk

Stairs (Multiple Fights or Stadium Steps)

- Warmup
 - 2 min brisk walk then walk up steps
 - walk down steps, 2 min brisk walk, then jog up steps
 - walk down steps, 2 min brisk walk then run up steps
 - walk down steps, 3 min walk
- Workout
 - Sprint up steps
 - walk down steps then 4 minute walk

Other Modes

- Cycling hills
- Swimming
- Elliptical
- Rowing
- Jump Rope
- Plyometrics
- Agility Drills

Parents with small children can perform HIIT while pushing a stroller or pulling a wagon. The kids love it and will encourage you to do it regularly!

Sports training: Training mode should be very similar the sport activity (eg runners should sprint, cyclers should cycle hills, etc.)

Fat loss: Exercises that utilize the largest muscles (Glutes and Quads) may have greatest potential in increasing post exercise metabolism.