



## ***The Steady State Cardio Myth***

Still think cardio is the best way to lose fat? Oh contraire my little elliptical rider! We have been preaching the benefits of strength training for fat loss for many years (and proving them with our clients). It's great to see the research finally catching up with what we know. Thinking about using marathon training for fat loss? You may lose a little weight, but what kind of weight? That is the question.

**Study:** Zouhal, H. Athletic Performance and Weight Changes during the 'Marathon of Sands' in Athletes Well-trained in Endurance. *Int. J. Sports Med.* Jul; 30(7): 516-21. (2009).

- **Conclusion:** After 6 days (one marathon per day) average weight loss was 6.1%
- BUT - 82% of the weight loss came from muscle(5% muscle loss, 1.1% fat loss)

We know that diet is THE key to fat loss. When you start looking at adding exercise to the mix, do you really think that slow cardio is the most effective use of your time?

**Study:** Utter, A.C. *et al.* Influence of diet and/or exercise on body composition and cardiorespiratory fitness in obese women.

*Int. J. Sport Nutr.* Sep; 8(3): 213-22. (1998).

**Conclusion:** A three-month study in which participants added 45 minutes of aerobic exercise at 78% max heart rate five days a week for 12 weeks had NO EFFECT over dieting alone.

The above study was conducted for 3 months. Surely a six month study and extra cardio will provide a different result right? Wrong!

**Study:** Redman *et al.* Effect of calorie restriction with or without exercise on body composition and fat distribution. *J. Clin. Endocrinol Metab.* Mar; 92(3): 865-72. (2007)

**Conclusion:** In a six month study, participants who dieted and added aerobic exercise 50 min five times per week showed no significant change in body composition over participants who dieted only.

OK then, let's see what 12 months and even more time will do.

**Study:** McTiernan, A. *et al.* Exercise Effect on Weight and Body Fat in Men and Women. *Obesity* June - 15:1496-1512. (2007).

**Conclusion:** During a 12-month study in which participants aerobically trained 60 min per day six days per week, the average weight loss was 3.5 lbs or about 0.3 lbs per month. Women lost an average of 3.08lbs, while men lost 3.96lbs.



## ***Interval Training versus Steady State Cardio***

The greatest advantage of metabolic resistance training is an elevated metabolism. We aren't worried about how many calories we burn during our workouts, we are most interested in how our workouts affect our calorie burn over the next 24 to 48 hours.

**Study:** Van der Heijden, G.J. *et al.* Twelve weeks of moderate aerobic exercise without dietary intervention or weight loss does not affect 24hr energy expenditure in lean and obese adolescents. *Am. J. Clin. Nutr.* Mar;91(3):589-96. (2010).

- **Conclusion:** After 12 weeks of 4 x 30 min at 70% of max heart rate, participants experienced no significant weight loss or change in metabolic rate.

Once again, aerobic exercise does not provide any weight loss benefit to dieting alone. Why then do we still feel the need to do "cardio" for 30 minutes a day?!?

**Study:** Miller, W.C. *et al.* A meta-analysis of the past 25 years of weight loss research using diet, exercise or diet plus exercise intervention. *Int. J. Obes. Relat. Metab. Disord.* Oct; 21(10):941-7. (1997).

- **Conclusion:** This study analyzed over 400 studies comparing diet only and diet plus aerobic exercise; it concluded that aerobic exercise does not provide a significant advantage over dieting alone

The following study may seem odd. The calories burned during exercise were the same and the diets for both groups were consistent, but the interval group lost fat and the steady state group did not? You betcha. It is the caloric burn after the workout that counts. Steady state training does not promote much of a metabolic boost. Intervals do!

**Study:** Trapp, *et al.* The effects of high-intensity intermittent exercise training on fat loss and fasting insulin levels of young women. *Int. J. Obes.* (Lond). Apr; 32(4): 684-91. (2008).

- **Conclusion:** After 15 weeks, participants who did 20 min of interval training three times per week lost an average of 5.5 lbs of fat and increased lean muscle mass, while participants who did 40 min of steady state exercise three times per week GAINED an average of 1lb of fat. The interval group also increased their aerobic capacity more than steady state group. Both groups burned the same total calories and ate the same diet.

Why are the steady state groups gaining weight? Some studies support that steady state cardio in excess can increase appetite. Not only are you not losing fat, you may be creating an environment to put on weight!

**Study:** King, et al. A comparison of the Effects of Interval Training vs. Continuous Training on Weight loss and Body Composition in Obese Pre-Menopausal Women. Master's Thesis. Dept of Physical Education, Exercise, and Sports Sciences. East Tennessee State University, May 2001.

- **Conclusions:** Participants who used interval training three times per week experiences a -4.4% change in body fat, while



steady state low intensity participants exhibited a +1.2% change!

## Strength Training

Aerobics plus diet shows hardly any benefit over just diet. Throw some weight training in the mix and now we're cooking!

Study: Kraemer, W.J. *et al.* Influence of exercise training on physiological and performance changes with weight loss in men. *Med. Sci. Sports Exerc.* Vol. 31, No. 9, pp. 1320-1329. (1999).

**Conclusions:** Overweight subjects were assigned to three groups: diet only, diet plus aerobics, and diet plus aerobics plus weights.

- The diet only group lost 14.6lbs of fat in 12 weeks, while the aerobic group lost only one more pound (15.6lb) than the diet group (Training was 3 times a week starting at 30 mins and progressing to 50 minutes over the 12 weeks.) The weight training group lost an incredible 21.1lbs of fat! (44% and 35% more than diet and aerobic only groups, respectively).

Increased aerobic capacity, an increased metabolism, significant fat loss and no reduction in lean body mass (muscle) with calories as low as 800 a day! Still don't think weight training is beneficial for fat loss?

**Study:** Bryner, R.W. *et al.* Effects of resistance vs. aerobic training combined with an 800 calorie liquid diet on lean body mass and resting metabolic rate. *J. Am. Coll. Nutr.* Apr;18(2):115-21. (1999).

- **Conclusions:** One group of participants aerobically exercised four hours per week while another group performed a resistance training regimen consisting of 2-4 sets of 8-15 reps. (10 exercises, 3 times per week).  $\dot{V}O_2$  max increased equally in both groups, but the resistance training group lost significantly more fat and did not lose any lean body mass. The aerobic group actually slowed their metabolism and decreased lean body mass!

Ah, the super-set. This is how we structure our training sessions at Fit1. Simply move from one exercise to another for superior fat burning qualities. Fit1 clients can attest to this.

**Study:** Kelleher, A.R. *et al.* The Metabolic Costs of Reciprocal Supersets vs. Traditional Resistance Exercise in young Recreationally Active Adults. *JSCR* Mar 17. (2010).

- **Conclusion:** "Reciprocal supersets produced greater exercise kJ. Min, blood lactate, and EPOC than did (traditional weight training). Incorporating this method of resistance exercise may benefit exercisers attempting to increase energy expenditure and have a fixed exercise volume with limited exercise time available."

This next study puts a damper on that old super-slow training philosophy. That sucker was put to bed years ago, but I still hear about it periodically. Train explosively folks. I know it looks different for some than others, but we need to include this in our workouts. A good example - kettlebell swings.

Study: Mazzetti, S. *et al.* Effect of explosive versus slow contractions and exercise intensity on energy expenditure. *Med Sci*



*Sports Exerc.* (2007).

Conclusion: This study compared two groups - explosive training and slow training (4 x 8 @60%rpm)

- Explosive group burned 13% more calories during training and 7% more in the post exercise period.

### ***Energy Expenditure Performing Different Types of Exercises***

Speaking of kettlebells....

**Study:** Farrar, R.E. et al. Oxygen cost of kettlebell swings. *J. Strength Cond. Res.* Apr; 24(4): 1034-6. (2010).

**Conclusions:** Participants were asked to perform as many KB swings as possible in 12 mins: Subjects averaged 197 swings to 333 swings (265 average). Their average heart rate was 87% max.

One of the highest calorie-per-minute activities ever measured is the kettlebell snatch. Guess what? It's explosive.

Pocari et al. University of Wisconsin (unpublished).

- This research established max kettlebell snatch rate per minute
- Subjects then performed ¼ of the max reps for 15s on, 15s off for 20 mins
- Caloric burn was 13.6 cal per min aerobically and 6.6 cal per min anaerobically
- (20.2 calories per minute)

Weight training for fat loss is a new concept as far as research is concerned. Yes, we have been proving that it works for decades, but now we are seeing the hard evidence. One of the problems was that we were using aerobic measures for anaerobic work. Great to see researchers getting a grasp on this...finally.

**Study:** Scott, C.B. Contribution of anaerobic energy expenditure to whole body thermogenesis. *Nutr Metab (Lond)*. Jun 15; 2(1):14. (2005).

- **Conclusion:** A weight training circuit burned 71% more calories than originally thought using aerobic measures. Participants performed 8 minutes of weight training burned somewhere between 159 and 231 calories.

Check out the real numbers below when we can qualify our measurements.

**Study:** Scott, C.B. Misconceptions about Aerobic and Anaerobic Energy Expenditure. *J. Int. Soc. Sports Nutr.* Dec 9; 2:32-7. (2005).

**Conclusion:** This study compared 3 ½ min aerobic exercise with 3 x 15s sprints

- Calories burned using aerobic measure:  
-29 calories for the aerobic, 4 calories for the sprint
- Calories burned With EPOC (anaerobic measurements) included:



- -36 calories for the aerobic, 39 for the sprint  
Calories burned using Anaerobic measure added:  
-39 calories for the aerobic session, 65 calories for the sprint

The great news is that you don't have to crush yourself every time you train. The harder you train the more you will benefit (within reason), but clearly just weight training done with moderate intensity is a great calories burner.

Look guys. We have been preaching the benefits of weight training for fat loss for years and proving it with our clients. I hope that these research snapshots will provide enough evidence to persuade just a few folks that strength training and intervals are far superior to steady state cardio when it comes to choosing how to exercise.