The Hierarchy of Fat Loss

This article adapted from Personal Training on the Net, written by Alwyne Cosgrove

"Fat loss is an all-out war. Give it 28 days - only 28 days. Attack it with all you have. It's not a lifestyle choice; it's a battle. Lose fat and then get back into moderation. There's another one for you: moderation. Revelation says it best: 'You are lukewarm and I shall spit you out.' Moderation is for sissies."

— Dan John, Legend

The Hierarchy of Fat Loss

1. Correct nutrition. There's pretty much nothing that can be done to out-train a crappy diet. You quite simply have to create a caloric deficit while eating enough protein and essential fats. There's no way around this.
2. See #1. Yep. It really is that important. Several trainers have espoused that the only difference between training for muscle gain and training for fat loss is your diet. I think that's a massive oversimplification, but it does reinforce how important and effective correct nutrition is toward your ultimate goal.
3. Activities that burn calories, maintain/promote muscle mass and elevate metabolism. I think it's fairly obvious that the bulk of calories burned are determined by our resting metabolic rate (RMR). The amount of calories burned outside of our resting metabolism (through exercise, thermic effect of feeding, etc.) is a smaller contributor to overall calories burned per day. We can also accept that RMR is largely a function of how much muscle you have on your body... and how hard it works. Therefore, adding activities that promote or maintain muscle mass will make that muscle mass work harder and elevate the metabolic rate. This will become our number one training priority when developing fat loss programs.
4. Activities that burn calories and elevate metabolism. The next level of fat loss programming would be a similar activity. We're still looking at activities that eat up calories and increase Exercise Post Oxygen Consumption (EPOC). EPOC is defined scientifically as the "recovery of metabolic rate back to pre-exercise levels." It can require several minutes for light exercise and several hours for hard intervals. Essentially, we're looking for activities that keep us burning more calories after the exercise session.
5. Activities that burn calories but don't necessarily maintain muscle or elevate metabolism. This is the icing on the cake, adding in activities that'll burn up additional calories but don't necessarily contribute to increasing metabolism. This is the least effective tool in your arsenal as it doesn't burn much outside of the primary exercise session. Let's put this fat loss continuum together in terms of our progressive training hierarchy.

Five Factors for Fat Loss Training

1. **Metabolic Resistance Training** - Basically we're using resistance training as the cornerstone of our fat loss programming. Our goal is to work every muscle group hard, frequently and with an intensity that creates a massive "metabolic disturbance" or "afterburn" that leaves the metabolism elevated for several hours post workout. A couple of studies to support this include the following:

   STUDY #1: Schuenke MD, Mikat RP, McBride JM. Effect of an acute period of resistance exercise on excess post-exercise oxygen consumption: implications for body mass management. Eur J Appl Physiol. 2002 Mar;86(5):411-7. Epub 2002 Jan 29.

   This study used a circuit training protocol of 12 sets in 31 minutes. EPOC was elevated significantly for 38 hours post workout. Thirty-eight hours is a pretty significant timeframe for metabolism to be elevated. If you trained at 9:00am until 10:00am on Monday morning, you're still burning more calories (without training) at midnight on Tuesday. Can we compound this with additional training within that 38 hours? No research has been done, but I have enough case studies to believe that you can.

   STUDY #2: Kramer, Volek 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.

   Overweight subjects were assigned to three groups: diet only, diet plus aerobics, diet plus aerobics plus weights. The diet group lost 14.6 pounds of fat in 12 weeks. The aerobic group lost only one more pound (15.6 pounds) than the diet group (training was three times a week starting at 30 minutes and progressing to 50 minutes over the 12 weeks). The weight training group lost 21.1 pounds of fat (44 percent and 35 percent more than diet and aerobic only groups respectively). Basically, the addition of aerobic training

didn't result in any real world significant fat loss over dieting alone. Thirty-six sessions of up to 50 minutes is a lot of work for one additional pound of fat loss. However, the addition of resistance training greatly accelerated fat loss results.

STUDY #3: Bryner RW, Ullrich IH, Sauers J, Donley D, Hornsby G, Kolar M, Yeater R. 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. 1999 Apr;18(2):115-21.

The aerobic group performed four hours of aerobics per week. The resistance training group performed two to four sets of eight to 15 reps, 10 exercises, three times per week. V02 max increased equally in both groups. Both groups lost weight. The resistance training group lost significantly more fat and didn't lose any LBM, even at only 800 calories per day. (The reason the calories were so low was to take any dietary variables completely out of the equation and compare the effects of the exercise regime on LBM and metabolism.)

The resistance training group actually increased metabolism compared to the aerobic group, which decreased metabolism. It seems that resistance training is a more significant stress to the body than a starvation diet. In my experience, full body training in a superset, tri-set or circuit format (with non-competing exercises) in a rep range that generates lactic acid (and pushes the lactic acid threshold or LAT) seems to create the biggest metabolic demand. It makes sense: training legs, back and chest will burn more calories and elevate metabolism more than an isolated approach training one of them.

The rep range that seems to work best is the eight to 12 hypertrophy range, although going higher will work just as well with a less trained population. For a powerlifter or an advanced bodybuilder, doing one max effort exercise or heavy, low rep lift is more than enough to maintain your current strength levels. Examples:

- **Powerlifter Exercise Sequence:**
  - Exercise One: Max Effort Squat, work up to a 3RM
  - Transitioning into metabolic work
- **Bodybuilder Exercise Sequence:**
  - 1A: Bench press, 2-3 sets of 4-6 reps
  - 1B: Row, 2-3 sets of 4-6 reps
  - Transitioning into metabolic work

2. **High Intensity Anaerobic Interval Training** - The second key "ingredient" in fat loss programming is high intensity interval training (HIIT). Interval work burns more calories than steady state and elevates metabolism significantly more than other forms of cardio. The downside is that it flat-out sucks to do it! The landmark study in interval training was from Tremblay.

   STUDY #4: Tremblay A, Simoneau JA, Bouchard C. Impact of exercise intensity on body fatness and skeletal muscle metabolism. Metabolism. 1994 Jul;43(7):814-8

   This study pitted 20 weeks of endurance training against 15 weeks of interval training:

   Energy cost of endurance training = 28661 calories
   Energy cost of interval training = 13614 calories (less than half)

   The interval training group showed a nine times greater loss in subcutaneous fat than the endurance group (when corrected for energy cost). Read that again. Calorie for calorie, the interval training group lost nine times more fat overall. Why? Maybe it's EPOC, an up regulation of fat burning enzyme activity, or straight up G-Flux. I don't care. I'm a real world guy. If the interval training group had lost the same fat as the endurance group, we'd get the same results in less time. That means interval training is a better tool in your fat loss arsenal.

3. **High Intensity Aerobic Interval Training** - The next tool we'll pull out is essentially a lower intensity interval method where we use aerobic intervals.

   STUDY #5: Talanian, Galloway et al Two weeks of High-Intensity Aerobic Interval Training increases the capacity for fat oxidation during exercise in women. J Appl Physiol (December 14, 2006). doi:10.1152/japplphysiol.01098.2006

   This study looked at high-intensity aerobic interval training and its influence on fat oxidation. In summary, seven sessions of HIIT over two weeks induced marked increases in whole body and skeletal muscle capacity for fatty acid oxidation during exercise in moderately active women. In layman's terms, the interval work appeared to "up regulate" fat burning enzymes. Basically, this means we can burn more fat in other activities as a result of this inclusion. In other words, we get some more bang for our buck. I do have a quick disclaimer, though. My colleague Alan Aragon once said, "Caring about how much fat is burned during exercise is equivalent to worrying about how much muscle is built during exercise." In other words, substrate utilization during exercise isn't really an important variable in the big picture of fat loss, total calories burned overall is.

4. **Steady State High Intensity Aerobic Training Tool** - This one is just hard cardio work. We're burning calories, but we aren't working hard enough to increase EPOC significantly or to do anything beyond the session itself. But calories do count. Burning another 300 or so calories per day will add up.

5. **Steady State Low Intensity Aerobic Training** - This is just activity, going for a walk in the park, etc. It won't burn a lot of calories. It won't increase muscle or EPOC. There isn't very much research showing that low intensity aerobic training actually results in very much additional fat loss, but you're going to have to really work to convince me that moving more is going to hurt you when you're in fat attack mode.

Putting It All Together: Time Management

You'll notice that this is perhaps the opposite recommendations from what you typically read in the mainstream media. Usually fat loss recommendations start with low intensity aerobics, progress to high intensity aerobics and then intervals. Finally, when you're "in shape," they recommend resistance training.

My approach to massive fat loss is attacking from the complete opposite of the norm. If you're a professional bodybuilder, then you typically have extra time to add in cardio and do extra work to get lean. A "real world" client with a job and a family can rarely afford additional time; therefore, we need to look at our training in a more efficient manner and focus on our time available first, then design our programming based on that.

If you have three hours per week, use only #1 above: metabolic resistance training This can be three one-hour training sessions or four 45-minute training sessions. It doesn't seem to matter. However, once you're getting three hours per week of total body resistance training, in my experience, I haven't seen an additional effect in terms of fat loss by doing more. My guess is that, at that point, recovery starts to become a concern and intensity is impaired. This type of training involves barbell complexes, supersets, tri-sets, circuits, EDT work, kettlebell combos, etc.

If you have three to five hours, use #1 and # 2: weight training plus high intensity interval work. At this point, any additional work is usually in the form of high intensity interval training. I'm looking to burn up more calories and continue to elevate EPOC. Interval training is like putting your savings into a high return investment account. Low intensity aerobics is like hiding it under your mattress. Both will work, but the return you get is radically different.

If you have five to six hours available, add #3: aerobic interval training. Aerobic intervals win out at this point because it's still higher intensity overall than steady state work, so it burns more calories. There appears to be a fat oxidation benefit, and it will still be easier to recover from than additional anaerobic work.

If you have six to eight hours available, add #4. If you're not losing a lot of fat with six hours of training already, then I'd be taking a very close look at your diet. If everything is in place, but we just need to ramp up fat loss some more (e.g., for a special event: a photo shoot, high school reunion, etc.), then we'll add in some hard cardio such as a long run or bike ride with heart rate at 75 percent of max or higher.

Why not do as much of this as possible then? Well, the goal is to burn as many calories as we can without negatively impacting the intensity of our higher priority activities. If I have more time than that, I'll add # 5. I don't think most of us have more than eight hours of training time available per week. But if we do, this is when any additional activity will help to burn up calories, which is never a bad thing. A lot of fighters have used this activity to help make weight. This works because it burns up calories but doesn't leave you tired for your strength training, sparring or technical work. That's the key with the addition of this activity: get your body moving and burn up some additional calories but not to work so hard that it inhibits recovery and negatively affects our other training.

The research and the real world don't really show massive changes from the inclusion of this type of activity. However, I think everything has its place. Remember, this is a hierarchy of training, and this is fifth on the list for a reason. Smart guys call this NEAT (Non Exercise Activity Thermogenesis). I call it moving a wee bit more than normal.

Keep in mind that all I've said here is that harder training works better than easier training. It really is that simple. To conclude, I agree with coach Dan John. Attack body fat with a passion and a single minded goal. The best way to do this is with an all-out assault implementing the hierarchy I described above.