29 march 2008

HOW TO ACHIEVE FAT LOSS

with Indoor Cycling Evolution

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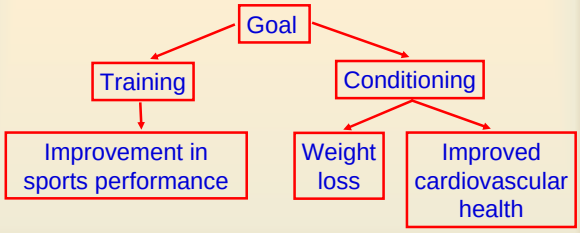
Training Goals



There is an epidemic of obesity in countries

such as the US and western Europe, with current statistics indicating that more than 50% of American adults are either overweight or obese. Although studies have supported a role for genetics, our genes have been the same for thousands of years but only recently has obesity increased so dramatically

At the moment, it appears that there are three pieces of the puzzle of weight gain:

- reduced energy expenditure from a decrease in physical activity
- which is not compensated for with a decrease in food intake
- plus eating the wrong types of food day in and day out.

The National Weight Control Registry

is an 8 year old project that has studied weight loss in 3500 extremely obese patients who lost (and maintained the loss) of an average of 60+ pounds. The common factor?? A high level of physical activity with an

average weekly expenditure of 2545 exercise Calories in women and 3293 Calories in men (equal to an hour of moderate physical activity per day)

coupled with an estimated intake of 1500 Calories per day

Basal Metabolism Rate (BMR)

Regular exercise also increases your basal metabolism rate or BMR (the number of Calories utilized by the body at rest to maintain basic life processes). An increased BMR is associated with all aerobic conditioning activity and is maintained with as little as 30 to 40 minutes of exercise 3 to 4 times a week. One study indicated that the increase in BMR with regular exercise might be even more pronounced in the older athlete

Why Indoor Cycling?

Our bodies are designed to move. To stay healthy and fit, we must remain active. One of the advantages of cycling is that it offers a balanced approach to fitness. Cycling is a full-body, low-impact, aerobic exercise that can help you:

- **Strengthen your heart**
- **Lower your blood pressure**
- **Boost your energy**
- **Burn off extra fat**

FAT LOSS...
The questions...

- What kind of exercise?
- Which intensity ?
- When ?
- How long ?
- Male and female is the same?

What kind of exercise?

Some have suggested that riding at slow speeds (<50% VO2 max) is preferred for a weight loss program as more of the Calories expended will be supplied from fat tissue storage at lower levels of exercise

If you ride at 65% VO2max, your body's fat stores will provide about half of your Caloric needs and the other half will come from glycogen reserves

At 85% VO2max, the relative number of Calories supplied from fat fall to about one third of the total number expended with the balance again coming from glycogen reserves

The difference is...

However, if one looks at the absolute numbers, a fit cyclist riding 30 min at 65% VO2max will burn about 220 Calories (110 fat Calories, 110 Calories from carbohydrate or glycogen stores). The same cyclist, riding at 85% VO2max will burn an additional 100 Calories (total of 320 Calories over the 30 minutes), with 110 Calories still coming from fat and the balance of 220 coming from carbohydrates

Cycling

Cycling is one of the most popular and effective ways to get in shape and stay healthy. About 80 million Americans already enjoy the benefits of cycling, and every day more and more people start their own cycling programs.

Cycling 2

Our bodies are designed to move. To stay healthy and fit, we must remain active. One of the advantages of cycling is that it offers a balanced approach to fitness. Cycling is a full-body, low-impact, aerobic exercise that can help you:

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Cycling for weight management

Regular physical exercise also benefits weight control.

If you take in more calories than you use every day, you gain weight. To reduce weight you can take in fewer calories by dieting or increase the amount you use by working harder or exercising.

A combination of cycling and dieting will allow you to stay in caloric balance and is much healthier than just dieting. With cycling, you lose fat, gain some muscle mass and look and feel better.

With just dieting, you will feel tired. With cycling, you can balance your caloric intake with your caloric output. A pound of fat equals 3,500 calories.

To lose 1,000 calories per week with exercise, add five sessions in which you burn 200 calories each session. As you design a cycling training pattern, aim to stay within a Target Heart Rate Zone of about 50-70% of your maximum to maximize your fat burning capacity.

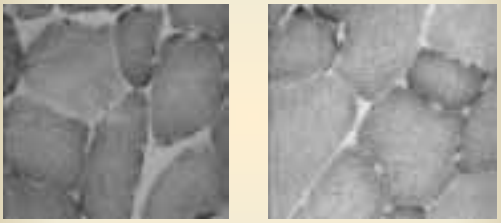
BUT... DON'T FORGET THAT .... WEIGHT TRAINING IS IMPORTANT

- Weight training increase muscle mass → increase BMR
- Weight training increase insulin efficency i.e. less insulin = reduced liposynthesis and increase lipolysis Eriksson *(1998 Horm Metabol res;30:37-41)* has compared endurance training and resistance training (circuit). Circuit weight training improved glucose disposal (23% p<0.005) compared with endurance training. This lead to a lower insulin incretion.
- Some studies indicate that fat mass is reduced with resistance training

(Prately et al. 1994; Campbell et al. 1994; Treuth et al. 1995; Hunter et al. 2000)

A. Pre-Training

B. Post-Training



Paoli et al submitted for publishing J Appl Physiol 2002

INTENSIVE OR EXTENSIVE EXERCISE ?

Endurance training made at 65% HRmax (i.e. about 45-48% VO_2max) is important because:

1. Increase fat oxydative capacity (Siliprandi 1987)
2. Reduce visceral fat
3. Reduce LPL activity
4. Increase Ndh and Adh sensibility

Mauriege et al Am j physiol 1997; Arner et al Obes relat Metab Disord 1995; Jensen Aet al Am J Physiol 1996)

INTENSIVE OR EXTENSIVE EXERCISE [2]?

- At rest RR is 0.80
- About 70% of energy is obtained by fats
- more prolonged is the exercise more energy is obtained by fats (90% after 6 h – 62 g fats/hour Edwards & Margaria 1934)

BUT...

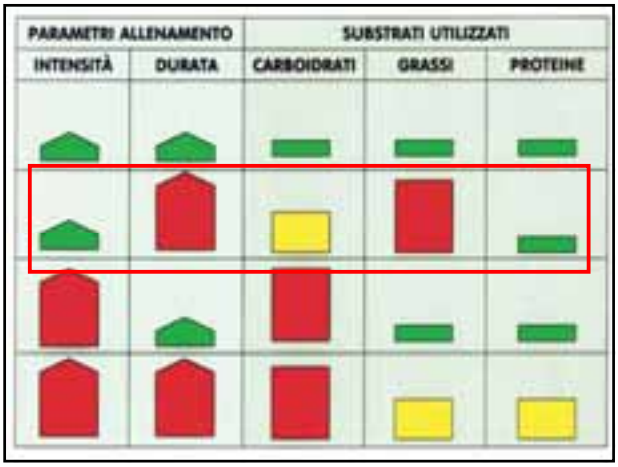
INTENSIVE OR EXTENSIVE EXERCISE [3]?

- We've to consider EPOC
- EPOC is proportional to exercise intensity
- We can increase EPOC for 12 h post exercise; 14.4, 6.8, 5.1 % after an exercise at 70% VO_2max performed for 80, 40 or 20 min respectively

Thompson Eur J Appl Phsyol 1998, Bahr J Appl Phsyiol 1987, Short J Sports Med 1996, Smith Eur J Appl Physiol 1993. Gore Eur J Appl Physiol 1990, Borsheim Acta Physiol Scand 1998

HYPOTHESIS...

- Is better endurance-resistance because lactate do not interfer with lipolysis
- Is better resistance-endurance because if we reduce glycogen we boost lipolysis sooner
- … and we can find another interessant hypothesis… but



Energy systems

The phosphagen system. A very limited supply of ATP – enough for less than 10 seconds of maximal effort – is stored directly in the working muscles, while re-phosphorylation of ADP from phosphocreatine (PC) stores provides enough for about 25 seconds total. This system produces the highest power output levels, and thus is used most heavily during any rapid acceleration, such as in sprinting and in the initial "jump" of a hard attack.

Non-aerobic glycolysis. This is the primary energy pathway used for efforts lasting 45-150 seconds. Type II, or fast-twitch muscle fibers, are the locus for glycolysis, with muscle glycogen (stored glucose) the sole fuel source (substrate). Also called the Embden-Meyerhof Cycle, or the lactic acid system, this pathway is capable of producing large quantities of ATP for a very short time, but is much less efficient in this regard than aerobic metabolism, since it does not utilize oxygen. The byproduct of this is lactic acid, or blood lactate, which if allowed to accumulate faster than it can be metabolized or perfused from the working muscles, can result in fatigue, i.e., a rapid drop-off in power-generating capability, as muscle acidity (pH) must be maintained within an optimal range.

The aerobic system. Much (19 times!) more efficient than glycolysis, this pathway, known as the Krebs Cycle, provides most of the energy for efforts of 3 minutes or longer. Aerobic metabolism occurs primarily in Type I, or slow-twitch muscle fibers, although there is a continuum within Type II fibers, some of which display characteristics of the former. For fuel, this system relies on fat (which contains more energy than CHO – 9 kcal/gram vs. 4.1 – but is less readily metabolized) at lower intensities, progressing to carbohydrate (CHO) as intensity increases. As exercise duration wears on, there is a gradual shift of fuel source from glycogen stored in the muscles, to blood-borne glucose acquired exogenously via ingested CHO.

EPOC

Not only is there an increase in your overall BMR with regular exercise, there is an additional 12/24/48-hour post-exercise boost in the BMR. As a rule of thumb, this adds 15 bonus Calories for every 100 Calories burned during your aerobic activity

EXCESS POSTEXERCISE OXYGEN CONSUMPTION

Excess post-exercise oxygen consumption (EPOC) is a measurably increased rate of oxygen intake following strenuous activity. The extra oxygen is used in the processes that restore the body to aresting state and adapt it to the exercise just performed. These include: hormone balancing, replenishment of fuel stores, cellular repair, innervation, and anabolism.

EPOC is accompanied by an elevated consumption of fuel, some studies found that included fat, but others did not find a similar effect. None of the studies set up to investigate the effect used very large sample sizes, possibly due to the cost of conducting the experiments

Duration of the effect

The EPOC effect is greatest soon after the exercise is completed and decays to a lesser level over time. One Experiment found EPOC increasing metabolic rate to an excess level that decays to 13% 3 hours after exercise, and 4% after 16 hours. Another study, specifically designed to test if the effect existed for more than 16 hours, conducted tests for 48 hours after the conclusion of the exercise and found measurable effect existed up to the 38 hour post-exercise measurement. (Schuenke 2002)

Effect of an acute period of resistance exercise….
[Eur. J. Appl. Phys. 2002]

Size of the EPOC effect

Studies show that the **EPOC effect exists after both anaerobic exercise and aerobic exercise**, but all studies comparing the two show that anaerobic exercise increases EPOC more than aerobic exercise does. For exercise regimens of comparable duration and intensity, **aerobic exercise burns more calories during the exercise itself**, but the difference is partly offset by the higher increase in caloric expenditure that occurs during the EPOC phase after anaerobic exercise. Anaerobic exercise in the form of high-intensity interval training was also found in one study **to result in greater loss of subcutaneous fat**, even though **the subjects expended fewer than half as many calories during exercise**.

Size of the EPOC effect [2]

In their 2004 survey of the relevant literature, Meirelles and Gomes found: "In summary, EPOC resulting from a single resistance exercise session does not represent a great impact on energy balance; however, its cumulative effect may be relevant.". This is echoed by Reynolds and Kravitz in their survey of the literature where they remarked: "However, it should be emphasized that the overall weight-control benefits of EPOC, for men and women, from participation in resistance exercise occur over a significant time period, since kilocalories are expended at a low rate in the individual postexercise sessions."

- Meirelles, Cláudia de Mello and Gomes, Paulo Sergio Chagas. (2004). *Acute effects of resistance exercise on energy expenditure: revisiting the impact of the training variables.* Rev Bras Med Esporte Vol 10, No 2 Mar/Apr 2004.
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Size of the EPOC effect [2]

What is clear is that the EPOC effect is greater the greater the intensity of the exercise and the greater the time spent during the exercise phase. Most studies found a linear relationship with time of exercise and the effect. One found a curvilinear relationship between the intensity and the EPOC effect, though others found a linear relationship

Oxygen consumption and Respiratory Ratio (RR)

- Gas monitor cardioline

QR

VCO_{2out} / VO_{2in}

CHO = $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
FAT = $C_{16}H_{32}O_2 + 23O_2 \rightarrow 16CO_2 + 16H_2O$

QR	CHO%	FAT %
0,70	0	100
0,75	15,6	84,4
0,80	33,4	66,6
0,85	50,7	49,3
0,90	67,5	32,5
0,95	84,0	16,0
1,00	100	0

Determining Your Maximum Heart Rate

You can determine your maximum heart rate by

- **1) having it tested or**
- **2) using predicted maximum heart rates**

ACTUAL TESTING. The most accurate way to determine your individual maximum heart rate is to have it clinically tested (usually by treadmill o bike stress testing) by a cardiologist or trained technician.

PREDICTED MAXIMUM HEART RATE. The easiest option is to estimate your maximum heart rate based on a formula which has been well-established for reliability

Maximum Heart Rate

Your maximum heart rate (MHR) is the fastest rate at which your heart will be in one minute. You might wonder why you need to know this number and, unless you use track your heart rate during exercise, you may not have any need to calculate your MHR

But, for exercisers, the typical way we calculate MHR is with the formula 220-age. This formula is a bit controversial because it doesn't reflect the differences in heart rate according to age. A more accurate formula, offered in a study published in the journal, Medicine & Science in Sports & Exercise, is **206.9 - (0.67 x age)**.

Jackson, Andrew S. Estimating Maximum Heart Rate From Age: Is It a Linear Relationship? Med Sci Sports Exerc. 39(5):821, May 2007

Cooper's Formula (beginners)

206,9- (0,67 x age) = HRmax
HRmax x % Training = HR of training

Ex: young man 20 years old
206,9- (0,67 x age) – 20 = 193,5 (HRmaxt)
60% = 116 bpm 70% = 135 bpm 80% = 155 bpm 90% = 174 bpm

Karvonen Formula

The Karvonen Formula is a mathematical formula that helps you determine your target heart rate zone

206,9- (0,67 x age) = HRmax = HRmax
HRmax-HR of resting [*] = HR di riserva
(FCris x % allenante) + FCrip = FC allenante

Ex: young man 20 years old 60 bpm HR resting
206,9- (0,67 x age) – 20 => 193,5 (HRmaxt)
193,5 – 60 => 133,5

60% = 140 bpm 70% = 153 bpm 80% = 167 bpm 90% = 181 bpm

[*] to get your resting heart rate, take your pulse for one full minute when you first wake up in the morning or after you've resting for a while

%VO2max- %FCmax relationship

%VO2 max	%FC max
50	66
58	70
60	74
65	77
70	81
75	85
80	88
85	92
90	96
100	100

Relazione tra % FCmax e % VO_2max (Taylor 1969, Saltin 1968, Londeree 1995, Swain 1994)

Use of heart rate to estimate exercise intensities that coincide with %VO_2max.

%VO_2max	% HRmax	%HRR
40	63	40
50	69	50
60	76	60
70	82	70
80	89	80
90	95	90

Adapted from Heyward V. (1997) and Swain et al. (1994)

Heart Rate Monitor
Heart Training Zones

Cycling Training Zones (CTZ)®

- Zone 1 65% di FCmax
  - (recovery rides)
- Zone 2 65-72 % di FCmax
  - (active recovery and endurance events)
- Zone 3 73-85% di FCmax
  - (aerobic and high aerobic impact)
- Zone 4 86-92% di FCmax
  - (aerobic-anaerobic training)
- Zone 5 93-100% di FCmax

Zone 2

Aerobic Training zone
(low impact)

Heart Rate Target is 65-72%
We may work in this target zone for a long time

Zone 2 is ideal for bikers that need recovery and who wants burn fats

Zone 3

The activity in this zone sets a good aerobic training and an improvement of aerobic performance

- **3a → 73-80% of maxHR →** long term and high resistance exercises
- **3b → 80-85% of maxHR→ medium term resistance and increase strength resistance**

We work in 3a zone to increase fat burnig and cardiovascular performance

We work in 3a zone to increase power and strength

"Si tu intención es salir a un Ironman deberás pasar muchas semanas (unas dieciséis) en la zona del 75-80% de tu FCM. Si la prueba es más corta te conviene trabajar dividiendo el tiempo de que dispones entre el primer y segundo subnivel"

Zone 4

Anaerobic training – high intensity

Improves cardiovascular performance

Improves VO2max.

85-92% of maxHR.

KEY POINTS FOR AN AEROBIC TRAINING PROGRAM

- Training needs to be structured for the intensity and duration of the planned sporting event.
- Long slow distance training is important at the beginning of the training season and for very long endurance events.
- Maximum aerobic improvement occurs at 85% VO2max (90% max. heart rate).
- Maximum aerobic conditioning (increasing VO2max) occurs with 3 workout days per week at or above 85% VO2max. Additional training days should be at a slower pace to allow recovery and build musculoskeletal strength.

KEY POINTS FOR AN AEROBIC TRAINING PROGRAM (2)

- Intervals can be ridden for one or two of these days.
- Exercising at less than 85% VO2max will improve general cardiovascular conditioning and overall musculoskeletal tolerance. It is suggested that one day a week be alloted to a long slow training ride equal to a distance of 2 to 5 times the actual competitive event.
- In training for endurance events (less than 90% maximum heart rate), train at the level of anticipated performance (%VO2max, %MHR) and with a long training ride equal to that of the event + 10 to 20%.

METHODS OF TRAINING (1)

Training needs to be structured for the intensity and duration of the planned sporting event. Anaerobic (oxygen independent) exercise is generally brief (less than 60 seconds in duration) and is fueled by the anaerobic energy pathways in the cell (ATP, creatine phosphate). Sprint activities also use anaerobic pathways. If the sprint lasts more than 5 or 10 seconds, lactic acid production (and clearance) also becomes an issue because of the negative effects of lactic acid on muscle performance. Training focused on anaerobic activities will enhance the ATP and CP energy transfer pathways in the cell as well as improving the tolerance for and clearance of lactic acid

METHODS OF TRAINING (2)

Aerobic training (more important for cycling and other sporting events lasting more than 60 seconds) on the other hand provides its benefits by improving the cardiovascular and oxygen delivery systems to the muscle cell. These include improvements in both cardiac output and at the muscle fiber level where there is an increase in the removal or extraction of oxygen from the blood cells in the capillaries. In addition, there is an improvement in the efficiency of the cellular metabolic pathways which convert glucose into ATP

METHODS OF TRAINING (3)

As the level of exertion (measured by %VO2max) increases, there is a slow transition towards anaerobic metabolism in the muscle. There are always areas of relatively lesser perfusion within the muscle that are functioning anaerobically. So even at 50 to 60% VO2max some anaerobic conditioning is occuring. But at 85% VO2max (the "anaerobic threshhold" for most individuals) there is an abrupt increase in anaerobic metabolism throughout the entire muscle

So even though some cross training of the anaerobic systems takes place during exercise at 60 to 80% VO2max, a training program for sprint performance needs to include several exercise sessions per week above 85%VO2max. Long slow distance may be good training for aerobic, endurance events, but it will not improve your sprint performance

Both aerobic and anaerobic exercise sessions need to be included in a training program, but it is the balance of the amount of each type of exercise (aerobic vs anaerobic; interval training, continuous training, and fartlek training) in the overall program which determines its suitability for the competitive event for which you are training

Training to Improve Aerobic Power

- Three methods
  - Interval training
  - Long, slow distance
  - High-intensity, continuous exercise
- Intensity appears to be the most important factor in improving VO_2 max

Interval Training

- Repeated exercise bouts
  - Separated by rest periods
- Work interval
  - Intensity: 85-94% HR_{max}
  - Should last longer than 60 seconds to improve VO_2 max
- Rest interval
  - Light activity such as walking
  - Should be as long as the work interval

Long, Slow Distance

- Low-intensity exercise
  - 57% VO_2 max
- Duration greater than would be expected in competition
- Based on the idea that training improvements are based on volume of training

%VO2 max	%FC max
50	66
58	70
60	74
65	77
70	81
75	85
80	88
85	**92**
90	96
100	100

High-Intensity, Continuous Exercise

- Appears to be the best method of increasing VO_2 max and lactate threshold
- High-intensity exercise
  - 65-75% VO_2 max
  - At or slightly above lactate threshold
- Duration of 25-50 min
  - Depending on individual fitness level

%VO2 max	%FC max
50	66
58	70
60	74
65	77
70	81
75	85
80	88
85	**92**
90	96
100	100

INTERVAL TRAINING SECRETS (IT)

Interval training is broadly defined as repetitions of high-speed/intensity work followed by periods of rest or low activity

An example could be 12 repetitions of 400 meters with a 200-meter jog between each

- Resting intervals may be:
  - Low or medium intensity exercices
- IT enables:
  - Use of ATP and CP => improvement in anaerobic-aerobic performance
  - Rise of lactacid tolerance
  - With short resting intervals => improvement in aerobic performance (+++ oxygen employment)

INTERVAL TRAINING SECRETS (IT) 2

- Work interval
  - High intensity training (
- Rest interval
  - It's the time between two work intervals
  - It may be:
    - Rest-relief: rest
    - Work-relief: low intensity activity
    - Combinazione di entrambi
  - The temporal relationship between High Intensity activity and Low intensity activity is:
    - 1:1/2
    - 1:1
    - 1:2

INTERVAL TRAINING SECRETS (IT) 3

More generally, it can refer to any cardiovascular workout (e.g. stationary biking, running, rowing, etc.) that involves brief bouts at near-maximum exertion interspersed with periods of lower-intensity activity.

One popular workout that incorporates this methodology is so-called "walk-back sprinting," in which one sprints a short distance (anywhere from 100 to 800 meters), then changes directions and walks back to the starting point (the recovery period) to do it again. To add challenge to the workout, each of these sprints may start at a predetermined time interval, e.g. 200 meter sprint, walk back, and sprint again every 3 minutes. The time interval provides just enough recovery

INTERVAL TRAINING SECRETS (IT) 4

It is believed by many in the fitness industry that this method of training is more effective at inducing fat loss than simply training at a moderate intensity level for the same duration. This has been confirmed in at least two studies

- Short-term sprint interval versus traditional endurance training: similar initial adaptations in human skeletal muscle and exercise performance. Martin J. Gibala, Jonathan P. Little, Martin van Essen1, Geoffrey P. Wilkin1, Kirsten A. Burgomaster1, Adeel Safdar, Sandeep Raha and Mark A. Tarnopolsky *J Physiol* Volume 575, Number 3, 901-911, September 15, 2006 DOI: 10.1113/jphysiol.2006.112094
- Two weeks of high-intensity aerobic interval training increases the capacity for fat oxidation during exercise in women.Jason L. Talanian,1 Stuart D. R. Galloway,2 George J. F. Heigenhauser,3 Arend Bonen,1 and Lawrence L. Spriet1 ***J Appl Physiol* 102: 1439-1447, 2007. First published December 14, 2006; doi:10.1152/japplphysiol.01098.2006 8750-7587/07**

HIIT: High Intensity Interval Training

High-intensity interval training (HIIT) is an exercise strategy that is intended to improve performance with short training sessions.

A HIIT session involves a warmup period, several short, maximum-intensity efforts separated by moderate recovery intervals, and a cooldown period. The period of alternating effort and recovery intervals typically lasts a total of 15 minutes.

HIIT: High Intensity Interval Training [2]

Studies by Tabata, Tremblay and others have shown this method to be more effective at burning fat and maintaining, or building, muscle mass than high-volume, lower intensity aerobic work-outs. According to a study by King, HIIT increases the resting metabolic rate (RMR) for the following 24 hours due to excess post-exercise oxygen consumption, and may improve maximal oxygen consumption (VO2 max) more effectively than doing only traditional, long aerobic workouts. Long aerobic workouts have been promoted as the best method to reduce fat, as fatty acid utilization usually occurs after at least 30 minutes of training. HIIT is somewhat counter intuitive in this regard, but has nonetheless been shown to burn fat more effectively. There may be a number of factors that contribute to this, including an increase in RMR, and possibly other physiological effects

HIIT BIBLIOGRAFY

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- Retrieved from "http://en.wikipedia.org/wiki/High-intensity_interval_training"

Are there any secrets to improve fat loss?

4 keys 4 fat loss

- Good nutrition.
- Daily physical activity.
- Positive mental attitude.
- Use of supplements to increase fat burning.

1. There are differents mechanisms to stress lipolysis
2. Fat burning…. During o after exercise?
3. There is a relationship between HR and oxygen consumption

Mechanisms to stress lipolysis

- Chip off fats from adipocytes
- Effects of hormones on adipocytes (GH, Adr)
- Trigger points (inside adipocytes): inside (HSL), mitochondria (CPT I-CPT II)

Class structure
"lipolitic training"
practical suggestions

Notes

Which rate (Flat?, Climb?, Run?)?
Which class duration?
Which rest time between two work intervals?
What can you eat after workout?
Is there a correlation between nutrition and training?

Training forms

- Endurance training (ET)
- Interval training (IT)
- High Intensity Lipolitic Training (HILT) → Piancastelli 2004

Lipolitic training
Lipolitic training / Cardio training
Lipolitic training

Warm Up

A good warm-up will prepare your muscles to cycle, help you perform better, and decrease the aches and pains most people experience.

Warm up by cycling slowly until you begin to break a light sweat. Gradually increase your heart rate from a resting level to the target zone level you've selected for the day's workout. This normally takes about 5 to 10 minutes.

Cool Down

The cool-down enables your body's cardiovascular system to gradually return to normal, preferably over a 5 to 10 minute period. Bringing your cycling to an abrupt halt can cause light-headedness, since blood will pool in your legs. Lower your cycling intensity and shift to a lower gear and roll around slowly on your bicycle until your heart rate returns to about 20 to 30 beats above your resting level.

Precision Cycling: Edmund R. Burke, Ph.D. University of Colorado at Colorado Springs Colorado Springs, Colorado 717-380-1473

Endurance training 70 %

- **Time: 53 minutes**
- **Warm up**
  - Flat 90 bpm/rpm 60%-65% FCmaxt
  - Durata: 6'35"
- **Workout**
  - Flat 104 bpm/rpm 70% di FCmax
  - Flat 100 bpm/rpm 70% di FCmax
  - Flat 110 bpm/rpm 70% di FCmax
  - Climb 140 bpm 70 rpm 70% di FCmax
  - Flat 100 bpm/rpm 70% di FCmax
  - Climb 140 bpm 70 rpm 70% di FCmax
- **Cool down**
  - Flat 94 bpm/rpm 65%-60% di FCmax 65% FCmaxt
  - Durata: 5'

Endurance training 75%

- **Time: 51 minutes**
- **Warm up**
  - Flat 92 bpm/rpm 60%-65% FCmaxt
  - Flat 104 bpm/rpm 70% di FCmax
- **Workout**
  - Climb 136 bpm 68 rpm 75% di FCmax
  - Flat 110 bpm/rpm 75% di FCmax
  - Climb 130 bpm 65 rpm 75% di FCmax
  - Flat 105 bpm/rpm 75% di FCmax
  - Flat 103 bpm/rpm 75% di FCmax
- **Cool down**
  - Flat 100 bpm/rpm 65%-60% di FCmax 65% FCmaxt
  - Durata: 5'08"

Extensive Aerobic Interval Training 70%-85%

- **Time: 58 minutes**
- **Warm up**
  - Flat 92 bpm/rpm 60%-65% FCmaxt
  - Durata: 5'18"
- **Workout**
  - Climb-jumps 136 bpm 68 rpm 70%-80% di FCmax
  - Flat 96 bpm/rpm 75% di FCmax
  - Climb 136 bpm 68 rpm 70%-80% di FCmax
  - Flat 96 bpm/rpm 70% di FCmax
  - Climb 138 bpm 68 rpm 75%-80% di FCmax
  - Climb 130 bpm 75 rpm 70%-85% di FCmax
- **Cool down**
  - Flat 96 bpm/rpm 65%-60% di FCmax 65% FCmaxt
  - Durata: 5'

Low Impact

	Titolo	Andatura	Bpm	FC %	Tempo
1	One giant	Flat	98	65-70	5.55
2	Unauthorized	Flat run	96	70-75	9.19
3	Everything	Climb	132	75	7.05
4	Audio tr 03	Flat jog	90	70-75	4.29
5	Amazonas	Climb	130	75	5.46
6	Original	Flat-Run	86	75	7.36
7	Secret	Flat	90	70-65	5.22
8	I don't wanna	Stretch	-----	-----	4.59
9					
10					
Total Time: 50'31"					
Blue Fitness 07: low impact					

Lipolytic Zone

	Titolo	Andatura	Bpm	FC %	Tempo
1	Remember you	Flat	86	65	4.37
2	One step to far	Flat	110	70	4.23
3	Don't leave home	Climb	130-160	75-80	7.14
4	Cold water music	Flat	106	70	5.14
5	9 pm:ATB	Climb	130	75	5.10
6	Ecstasy: ATB	Climb	132	80	3.28
7	100 rpm	Flat	104	70	4.45
8	Gouryella remix	Climb	130	75	7.30
9	It's good to be in	Flat	100	65	4.20
10	La nascita. Einaudi	Stretch	------	------	4.22
11					
12					
Total Time: 56'48"					
Welcome Fitness 06 "Lipolitic Zone"					