

# LIPIDOCTOR™

## The Scientific Way to Shrink Cells and Burn Fat

Lipidoctor™ Medical Slimming Clinics have discovered a systematic way to help you switch from fat accumulation to fat mobilization, so that excess fat can be burned.

First, decrease fat creation. This can be accomplished in two ways:

- 1) Minimize or block the stimulation of cell surface receptors that accelerate fat creation. Insulin is a prime trigger for fat creation, and we have many strategies to modulate this hormone.
- 2) Decelerate the intracellular fat creation machinery with specific enzyme modulators.

Second, stimulate fat mobilization. Here are the four practical ways to mobilize fat:

- 1) Stimulate cell surface receptors that accelerate fat breakdown.
  - Turn the key and increase the throttle of the fat disassembly line, by infusing Beta adrenergic agonist medications into adipose tissue. The medications adrenaline and noradrenaline are examples of Beta receptor triggers.
  - Exercise is a natural way to enhance Beta adrenergic stimulation. Exercise releases more of your body's own adrenaline/noradrenaline. The fat break down effect in response to a half hour or more of physical activity lasts for hours. Interestingly, the combined Beta adrenergic effect of exercise and infused Beta agonists is greater than the sum of the two interventions separately. This is one reason we promote physical activity in conjunction with Infusion Lipolysis.
  - We do not recommend taking ephedrine or ephedra by mouth. This is a dangerous way to stimulate Beta receptors. These substances significantly stimulate receptors in the heart, which have resulted in cardiac arrhythmias and death. This is why ephedrine has been banned in many countries.
- 2) Block the stimulation of cell surface receptors that decelerate fat breakdown.
  - Stop the throttle from being turned down, by infusing Alpha 2 adrenergic antagonist medications into adipose tissue. They attach to these cell surface receptors and prevent their activation.
- 3) Accelerate the intracellular fat breakdown machinery (the 'lipolysis cascade'), with highly specific enzyme modulators.
  - Enhance the production of cAMP by increasing the intracellular concentration of the enzyme adenylate cyclase. The combined Beta adrenergic effect of an adenylate cyclase activator and a Beta agonist is also greater than the sum of the two interventions separately.

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- Maintain the increased concentration of cAMP by inhibiting the action of the enzyme phosphodiesterase, which breaks down cAMP.
  - Increase the concentration of hormone-sensitive lipase with vitamins.
  - Increase the overall speed of the lipolysis cascade by boosting levels of intracellular calcium.
- 4) Stimulate the flushing away of broken down fat (fatty acids and glycerol).
- Enhance bloodflow with exercise.
  - Increase bloodflow through fatty tissue by infusing vasodilating substances.
  - Enhance bloodflow and lymphatic drainage from fatty tissue by mechanical means.

Third, burn the mobilized fat. Here is how you can burn the fatty acids released from fat breakdown:

- 1) Exercise.
- Cardio combined with resistance training is the gold standard for efficient burning of fatty acids, which are used as fuel for increased muscle movement. Resistance training is critical to the result because it not only burns fatty acids by virtue of muscle contraction, it also stimulates the production of new muscle cells, which themselves become additional fat burners.
  - Exercise also increases local blood flow, which enhances delivery of fatty acids to muscle.
- 2) Increase thermogenesis (the production of body heat).
- Infuse methylxanthines. [See Reference 5]
  - Drink tea. The catechins found in tea safely boost thermogenesis. [See Reference 1]
  - Exercise in ambient temperatures cold enough to cause shivering.
- 3) Increase resting muscle tone.
- Keeping muscle in a partially contracted state requires additional fuel; ie. more fatty acids. This can be accomplished with the infusion of methylxanthines. [See Reference 3]
- 4) Optimize hepatic activity.
- Your liver is the other key fat-burning organ. Shifting the balance from fat accumulation to fat burning in the liver requires individualized nutritional adjustments. This can be accomplished without drugs.

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### References and Recommended Reading

- [1] FAT WARS Brad J. King MacMillan Canada 2000
- [2] FAT WARS ACTION PLANNER Brad J. King MacMillan Canada 2003
- [3] SPORT AND EXERCISE PHARMACOLOGY Stan Reents Gold Standard Multimedia Inc. 2000
- [4] PHYSIOLOGIC BASIS FOR THE CONTROL OF BODY FAT DISTRIBUTION IN HUMANS Leibel, R.J. Annu. Rev. Nutr. 1989 9:417-43
- [5] CAFFEINE AS A LIPOLYTIC FOOD COMPONENT INCREASES ENDURANCE PERFORMANCE Ryu, S. J. Nutr. Sci. Vitaminol. 2001 47:139-46
- [6] DIRECT EFFECTS OF CAFFEINE AND THEOPHYLLINE ON THE p110d AND OTHER PHOSPHO-INOSITIDE 3-KINASES, Foukas, L. Papers in Press: J. Biol. Chem. July 26, 2002

### Glossary

**Lipolysis:** The breakdown of fat into fatty acids and glycerol.

**Lipogenesis:** The manufacture of fat from fatty acids and glycerol-3-phosphate.

**Fat Mobilization:** The combination of fat breakdown into fatty acids (lipolysis) and the release of these fatty acids from adipose cells into the bloodstream.

**Fat Burning:** The burning of fatty acids from broken down fat, to release energy for cell metabolism, heat, and movement.

**Thermogenesis:** the burning of fatty acids and/or glucose to heat your body.

**Infusion Lipolysis™:** the proprietary percutaneous/transdermal procedure developed by Lipidoctor™ Medical Slimming Clinics, to promote fat mobilization, fat burning and thermogenesis.